UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

California Department of Water Resources	)	Project No. 2100-052

EXPLANATORY STATEMENT

March 24, 2006

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I. Introduction

Pursuant to Rule 602 of the Rules of Practice and Procedure of the Federal Energy Regulatory Commission (FERC or Commission), the California Department of Water Resources (DWR) is pleased to file, on behalf of itself and the other Settling Parties,[1] the attached Settlement Agreement for Licensing of the Oroville Facilities. The Settlement Agreement is a comprehensive settlement package that by its terms resolves all relicensing issues among the Settling Parties associated with DWR's pending Application for New License (Application) for continued operation of the Oroville Facilities, FERC Project No. 2100 (Project). DWR and the Settling Parties believe the Settlement Agreement

[1] The other Settling Parties include Alameda County Flood Control & Water Conservation District, Zone 7, Alameda County Water District, American Rivers, American Whitewater, Antelope Valley – East Kern Water Agency, Berry Creek Citizens Association, California Department of Boating and Waterways, California Department of Fish and Game, California Department of Parks and Recreation, California State Horsemen's Association, California State Horsemen's Association Region II, Castaic Lake Water Agency, Central Coast Water Agency, Chico Paddleheads, Citizens for Fair and Equitable Recreation, City of Oroville, Coachella Valley Water District, County of Kings, Crestline – Lake Arrowhead Water Agency, DC Jones, Desert Water Agency, Empire West Side Irrigation District, Feather River Low Flow Alliance, Feather River Recreation and Parks District, International Mountain Bicycling Association, Kern County Water Agency, Kon Kow Valley Band of Maidu, Lake Oroville Bicyclist Organization, Littlerock Creek Irrigation District, Metropolitan Water District of Southern California, Mojave Water Agency, Napa County Flood Control and Water Conservation District, National Marine Fisheries Service, Oak Flat Water District, Oroville Area Chamber of Commerce, Oroville Downtown Business Association, Oroville Economic Development Corporation, Oroville Parks Commission, Oroville Recreation Advisory Committee, Oroville Redevelopment Agency, Oroville Rotary Club, Palmdale Water District, San Bernardino Valley Municipal Water District, San Gabriel Valley Municipal Water District, San Gorgonio Pass Water Agency, Santa Clara Valley Water District, Solano County Water Agency, State Water Contractors, Inc., Town of Paradise, Tulare Lake Basin Water Storage District, and United States Department of the Interior on behalf of its component bureaus.

appropriately balances all interests and resources related to relicensing of the Project. DWR further believes that the agreed-upon measures set forth in the Settlement Agreement meet and indeed exceed all public interest requirements of the Federal Power Act (FPA) and other statutory and regulatory requirements pertaining to the relicensing of the Project. DWR has agreed to these measures as a means of compromise and of settling the above-captioned proceeding. The Settlement Agreement includes an Appendix A, which incorporates all of the protection, mitigation and enhancement measures the Settling Parties believe to be under FERC's jurisdiction in Proposed License Articles, and Appendix B, which includes all of the protection, mitigation and enhancement measures and other agreements the Settling Parties believe to be outside of FERC's jurisdiction or are commitments made by parties other than DWR. DWR submits Appendix A to the Settlement Agreement as its new preferred alternative in lieu of the preferred alternative identified in its January 2005 Application. The Settlement Agreement requests a 50-year license term.

Since its commencement in 2001, the process for relicensing the Project has been broad-based, collaborative and representative of a wide array of stakeholder interests, including affected Federal and State agencies, local governmental entities, tribal interests, non-governmental organizations and local residents. The relicensing process was conducted under the Commission's Alternative Licensing Procedures (ALP), and involved the substitution of the Environmental Report normally required as Exhibit E with a Preliminary Draft Environmental Assessment (PDEA). As a result, the participants in the

collaborative relicensing process were extensively involved in scoping issues, submitting study requests, formulating study scopes, reviewing study results and commenting on the draft license application and draft PDEA.

The Settlement Agreement is the result of this broad-based relicensing effort and represents the culmination of substantial efforts on the part of each Settling Party to craft a settlement that would garner support among the wide array of interests represented in the collaborative. Since the commencement of negotiations in April 2004 and through DWR's filing of the Application on January 26, 2005, the Settling Parties have invested considerable time and resources in finalizing the Settlement Agreement. The Settlement Agreement proposes numerous Project improvements, and, pursuant to the Settling Parties' various rights, authorities, and responsibilities under Sections 4(e),[2] 10(a), 10(j) and 18 of the FPA, as well as other statutory and regulatory authorities and implied powers, the Settlement Agreement establishes DWR's obligations for the protection, mitigation and enhancement of resources affected by the Project under the New Project License.[3] The Settlement Agreement, moreover, is fully supported by the record in this proceeding, which includes numerous relicensing studies, the PDEA, and this Explanatory Statement. Accordingly, the Commission should expeditiously approve the Settlement Agreement, without modification, by issuing

[2] The U.S. Forest Service is not a signatory to the Settlement Agreement but provided draft conditions under Section 4(e) of the FPA. Those conditions are attached as Appendix E. The Settlement Agreement § 4.2.2.1 acknowledges that these Section 4(e) conditions are consistent with the Settlement Agreement.

[3] Pursuant to the California State Water Resources Control Board (SWRCB) Collaborative Process Participation Statement, set forth as Appendix D to the Settlement Agreement, the SWRCB participated extensively in the settlement negotiations but declined to sign the Settlement Agreement as a matter of agency policy. Nonetheless, Mr. Arthur G. Baggett Jr., a member of the SWRCB, is a signatory to the Settlement Agreement as a recommendation to the SWRCB.

to DWR a new 50-year license for the Project that includes as license articles the Proposed License Articles set forth in Appendix A to the Settlement Agreement.

II. Background

DWR's original license for the Project, issued by the Federal Power Commission on February 11, 1957, expires on January 31, 2007. To initiate the relicensing of the Project, DWR consulted with many potential stakeholders to determine whether there was support for using the Commission's ALP process. Upon determining that there was sufficient support, DWR submitted its request to use the ALP process to the Commission on November 22, 2000. The Commission approved the request on January 11, 2001. Once approved, DWR engaged in the ALP by formally establishing a collaborative group of stakeholders. The collaborative group participated extensively in the pre-filing relicensing process and was actively involved in scoping issues, requesting studies, participating in technical workgroups, reviewing study results and recommending protection, mitigation and enhancement measures (PM&E). Non-decisional FERC Staff assigned to assist the parties participated extensively and provided insight as to how the proposed measures would fit into the licensing framework as described by the Commission in recent orders. Members of the collaborative group also provided comments on the draft license application and draft PDEA. Many of the collaborative members and DWR then engaged in settlement negotiations in an attempt to reach a comprehensive settlement for the relicensing of the Project. Again, FERC Staff provided helpful background

regarding other successful relicensing settlements, and otherwise assisted in the negotiations.

The Settling Parties have devoted much time and many resources to developing appropriate information and negotiating the details of the Settlement Agreement. The Settlement Agreement represents the culmination of the cooperative effort that began in 2001 and achieves an overall balance among the interests of the various stakeholders and Project purposes and resources while concurrently meeting DWR's obligations as a state agency, and does so in a manner that concurrently meets DWR's obligations as a licensee under the FPA.[4]

III. Overview of the Settlement Agreement

During the pre-filing relicensing stage as the collaborative evolved into settlement negotiations, DWR and other stakeholders reached several agreements in principle on many substantive issues. Because negotiations were not completed prior to the filing of the license application, DWR filed its application with a package of PM&E measures it believes is sufficient to meet its obligations under applicable law. Since filing that application, negotiations continued and DWR and the Settling Parties have resolved all remaining issues among them. As a result, DWR has agreed to supplement and improve the initial package of PM&E measures contained in the license application with those now contained in this Settlement Agreement.

[4] DWR is continuing to discuss settlement possibilities with certain non-settling stakeholders regarding issues particular to those stakeholders. If settlements are reached with these parties, there may be additional measures undertaken, but DWR does not anticipate that this comprehensive Settlement Agreement itself would be affected.

This Settlement Agreement also establishes procedural obligations among the Settling Parties, such as consultation among parties, dispute resolution and withdrawal procedures. Together, these procedural and substantive obligations of the Settlement Agreement form a package that constitutes the Settling Parties' recommendations, terms and conditions and prescriptions for the New Project License in the above-captioned proceeding.[5]

During the negotiation of the Settlement Agreement, the Settling Parties identified critical obligations in the Settlement Agreement that are both enforceable by the Commission and appropriate to include in the 50-year New Project License. The Settling Parties recognized that fundamental to their assent to the Settlement Agreement was the assurance that the Commission not disturb the terms of the Settlement Agreement that the Settling Parties have devoted so much time and resources in studying, discussing, analyzing and negotiating, and would instead incorporate enforceable terms into the New Project License, without modification.

Accordingly, the Settling Parties prepared the Proposed License Articles embodying such obligations, which are compiled in Appendix A to the Settlement Agreement. To ensure that the Proposed License Articles would satisfy Commission scrutiny and meet the jurisdictional constraints of the FPA, thereby garnering Commission approval without modification, the Settling Parties

[5] Attached as Appendix A to this Explanatory Statement is a document entitled "Final Detailed Environmental Understandings," which represents the agreement in principle among the Settling Parties on certain key environmental protection, mitigation and enhancement measures to be addressed in the New Project License. This agreement in principle is provided for background information only, as the Settlement Agreement itself contains the actual Proposed License Articles the Settling Parties intend the Commission to include in the license.

coordinated extensively and carefully crafted the articles by relying on Commission guidance documents, researching recent Commission licensing orders and consulting with non-decisional Commission Staff. In order to ensure that all Settling Parties receive the benefit of their bargain, the Settlement Agreement was specifically crafted to include withdrawal procedures in the event that any Commission licensing action directly and materially aggrieves the interests of any Settling Party.[6] Such licensing action may include: (1) altering or preventing implementation of any Proposed License Article; (2) creating a material inconsistency between any part of the New Project License and the Settlement Agreement; and (3) requiring the addition of any material terms to the Proposed License Articles.[7] Therefore, the Settling Parties in the Settlement Agreement Section 4.6.4 agree to request that the Commission adopt the Appendix A license measures without material modification.

A. Substantive Obligations of the Settling Parties

1. Environmental Provisions

a. Establishment of an Ecological Committee (Article A100)

DWR will establish an Ecological Committee (EC) to advise it on ecological issues related to the implementation of the New Project License. Membership on the EC will be comprised of Settling Parties who represent relevant Federal and State regulatory agencies (such as National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service, Bureau of Land Management, California Department of Fish and Game (Fish and Game), and

[6] Settlement Agreement § 6.
[7] *See, e.g., id.* § 1.5.8.

California Department of Parks and Recreation (Parks and Recreation)); local governmental entities and Native American tribes; and other interested Settling Parties (such as the State Water Contractors and American Rivers). Also, the State Water Resources Control Board and the Central Valley Regional Water Control Board shall be members of the EC, even though they will not be signing the Settlement Agreement. In addition, other persons have the option to apply for membership on the EC.[8] The EC will be established within three months of license issuance, and will consult, review plans, and provide advice to DWR as expressly provided in specific license articles. In addition, the EC will consider any material new information that arises relevant to any plans on which the EC was originally consulted.

DWR will arrange, administer, and chair all meetings, although a facilitator may be used if necessary. The public will be provided time to address the EC on agenda topics before the EC commences its deliberations. The EC shall attempt to reach consensus on all matters before it. DWR will implement a consensus decision on any given matter, subject to the requirements of the relevant license article and any necessary regulatory approval. In the absence of consensus, DWR may proceed in a manner that complies with the license after obtaining any necessary regulatory approvals. Special consideration is provided for those agencies that have specific regulatory authority over a particular matter.[9]

[8] *Id.*, Appendix C § 2.0.
[9] *Id.*, Appendix C § 4.1-4.3.

b. Lower Feather River Habitat Improvement Plan (Article A101)

DWR has agreed to a number of projects that will improve the lower Feather River Habitat for Chinook salmon and steelhead. The overall management strategy of the Lower Feather River Habitat Improvement Plan is to coordinate the various habitat improvements of the Project to maximize the benefits to fish and wildlife species.

DWR will develop a comprehensive Lower Feather River Habitat Improvement Plan that includes the following programs: (1) Gravel Supplementation and Improvement Program; (2) Channel Improvement Program; (3) Structural Habitat Supplementation and Improvement Program; (4) Fish Weir Program; (5) Riparian and Floodplain Improvement Program; (6) Feather River Fish Hatchery Improvement Program; (7) Comprehensive Water Quality Monitoring Program; (8) Oroville Wildlife Area Management Plan; and (9) Instream Flow and Temperature Improvement for Anadromous Fish. In addition, the Lower Feather River Habitat Improvement Plan would attempt to minimize the creation or exacerbation of predation or predatory habitat during the development, implementation, or operation of any future license program or action.

DWR will annually report monitoring results and activities, if appropriate, to the EC. Beginning after the fifth year of the new license, DWR will develop a single, comprehensive monitoring and adaptive management summary report, which will be prepared at five-year intervals throughout the duration of the license. The comprehensive report will include the results of each of the various

components of the Lower Feather River Habitat Improvement Plan and will provide a summary of actions taken, management decisions, and proposed modifications to the various program components. Because many of the programs will be developed in the first five years of the new license, the first Lower Feather River Habitat Improvement Plan Report will be comprehensive to the extent the data is available at the time the report is due.

The PDEA did not address an overall management strategy for the lower Feather River, nor did it fully address the potential interactions between predators and native or special status species potentially caused by project modifications. Implementation of this program will be beneficial to coordinate all of the proposed measures to be implemented in the lower Feather River, and it will be adequate to assess and correct potential predation problems created or exacerbated by any DWR sponsored or implemented project modifications.

c. Gravel Supplementation and Improvement Program (Article A102)

Based on the results of Study Plan G2 Task 2: *Effects of Project Operations on Geomorphic Processes Downstream of Oroville Dam* (Spawning Riffle Characteristics), the current spawning habitat in the Low Flow Channel has likely deteriorated because of a lack of suitable spawning gravel. Because upstream sources of sediments, including gravel, have been, and will likely continue to be trapped behind Oroville Dam, DWR will develop a spawning Gravel Supplementation and Improvement Program designed to mitigate for the cumulative impacts of the Project on the quantity and quality of spawning gravels available for steelhead and Chinook salmon. An increase in the quantity and

quality of suitable spawning habitat is expected to reduce rates of redd superimposition and the associated egg mortality, as well as reduce competition for spawning habitat which should contribute to the reduction of pre-spawn mortality rates.

Because of the current salmonid spawning gravel condition, DWR has agreed as part of the Settlement Agreement to immediately initiate the planning, development and implementation of a program to supplement up to 15 locations in the Low Flow Channel or High Flow Channel of the Feather River, with at least 8,300 cubic yards of spawning gravels suitable for spring-run Chinook salmon or steelhead. DWR has agreed to complete this initial supplementation within five years following license issuance. This provision is covered both by the proposed license article (A102) and by Appendix B (B105) because it is partially an early implementation item. Within two years of license issuance, DWR will also develop a Gravel Supplementation and Improvement Program to address ongoing and future gravel management for the lower Feather River. The Gravel Supplementation and Improvement Program will provide for: (1) a physical assessment of the spawning riffles from River Mile 54.2 to River Mile 67.2 of the Feather River; (2) a gravel budget for the Low Flow Channel and, if necessary, portions of the High Flow Channel within the Project Boundary; (3) a strategy to augment existing gravel recruitment in the Low Flow Channel and High Flow Channel beyond the 8,300 cubic yards with gravel injections, placements, or other methods developed through site-specific investigations or as recommended by the EC, including specifically U.S. Fish and Wildlife Service, NMFS, and Fish

and Game; (4) plans to monitor and evaluate the effectiveness of gravel augmentation, particularly the biological response of fish species to the gravel supplementation and improvement activities; (5) an annual summary account of the activities conducted; (6) a definition of high flow events; and (7) coordination with other components of the license and the Lower Feather River Habitat Improvement Plan to improve natural reproduction of steelhead and Chinook salmon.

The Gravel Supplementation and Improvement Program will also include the following measures, criteria and timelines:

(1) All work within the Ordinary High Water mark of the Lower Feather River will take place during the summer months of June and July, or at other times as allowed by permit conditions to produce minimal impact to the target species (steelhead and Chinook salmon) and other river attributes (*i.e.* water quality).

(2) Gravel placement or riffle rehabilitation at the treated riffles will, where feasible, cover the extent of naturally observed spawning, or within an area extending between river banks, and extend at least 50 feet upstream and 50 feet downstream of the riffle, and be a depth of at least one foot.

(3) Licensee will monitor and replenish or rehabilitate gravel at individual sites every five years, as needed, for the term of the License. At five year intervals after the initial supplementation period, the Licensee will monitor and maintain a minimum of 10 sites, (*i.e.,* riffle complexes), in the Low Flow Channel so that approximately 80% of the spawning gravels randomly sampled at each

site shall be in the median size range preferred by the target species (Chinook salmon or steelhead). All work will be done in consultation with the EC, including specifically U.S. Fish and Wildlife Service, NMFS, and Fish and Game.

(4) The Licensee, in consultation with the EC, will also determine the need for additional gravel supplementation activities to be conducted in the High Flow Channel of the Feather River (within the Project Boundary). If and when the need arises, but no sooner than Year 10 of the license, the Licensee will prepare a gravel budget for supplementation activities in the High Flow Channel of the lower Feather River (within the Project Boundary). This would include the staging of spawning gravel stockpiles, of up to 2,000 cubic yards, of a size distribution agreed upon by the Licensee, the EC, including specifically U.S. Fish and Wildlife Service, NMFS, and Fish and Game, in the immediate vicinity below or near the pool below the Thermalito Afterbay Outlet.

(5) The Licensee, after consulting with the appropriate agencies, will coordinate the gravel supplementation activities with the measures conducted within the Lower Feather River Habitat Improvement Plan.

(6) Components of the Gravel Supplementation and Improvement Program and Lower Feather River Habitat Improvement Plan will include monitoring plans to monitor and evaluate the use of the improved areas by anadromous salmonids to determine the effectiveness of the gravel supplementation or riffle rehabilitation to ensure that spawning gravels are not a primary limiting factor for the natural reproduction of steelhead or Chinook salmon. If the monitoring activities determine that suitable spawning areas are a

primary limiting factor for their natural reproduction, additional gravel supplementation activities will be conducted by the Licensee, in coordination with the EC and the appropriate agencies.

The Gravel Supplementation and Improvement Program will be designed to mitigate for the ongoing incremental impacts of the Project on the quantity and quality of spawning gravels available for steelhead and Chinook salmon, as identified in Study Plan G2 Report. A Gravel Supplementation and Improvement Program was included in the Proposed Action in the PDEA,[10] and environmental analysis determined that the Gravel Supplementation and Improvement Program would be beneficial.[11]

d. Channel Improvement Program (Article A103)

The presence of Oroville Dam and its associated facilities precludes passage of migratory fishes as set forth in the Initial Information Package filed with the Commission in January 2001. Therefore, access to steelhead and spring-run Chinook historic spawning habitat has been reduced. Typically, historic spawning habitat for steelhead would have been small streams or creeks, probably ranging between 5 and 75 cubic feet per second (cfs) flow. Study Plan reports F10 Tasks 3A and 3B identified small side channels in the lower Feather River as primary rearing habitat for juvenile steelhead. Accordingly, the Settlement Agreement includes a Proposed License Article establishing a Channel Improvement Program (A103). The Channel Improvement Program includes habitat improvement measures to increase the quality and complexity of

[10] PDEA at § 3.2.2.6, p. 3-35.
[11] *Id.* at Table 5.3-1, p. 5.3-11; pp. 5.5-53 through 5.5-57; Table 5.7-4 at p. 5.7-19.

salmonid spawning and rearing habitat in two existing side channels, Moe's Ditch and Hatchery Ditch. Additionally, the Settlement Agreement includes development of five additional side channel riffle/glide complexes over a five year period, which will provide a minimum of 2,460 feet in length of new spawning and rearing habitat for Chinook salmon and steelhead. The EC and the Agencies will be instrumental in recommending the locations and habitat components of the five additional projects.

The impetus for creating additional side channels in the Low Flow Channel is to provide additional spawning and rearing habitat for steelhead primarily, and incidentally for spring-run Chinook salmon. The Low Flow Channel was targeted for project implementation because of recent observations of steelhead using existing side channels as primary spawning and rearing areas. Furthermore, all side channels created would be adjacent to existing riffle complexes and would, as feasible, approximate historic habitat with respect to base flow ranges and other environmental conditions. More specifically, side channels would probably range between 10 and 75 cfs and should be designed to provide appropriate depth, velocity, substrate and in-stream and riparian cover to satisfy spawning and rearing needs of steelhead, and incidentally, spring-run Chinook salmon.

All side channels will be monitored for use by the target species. At a minimum, monitoring will include an assessment of use by spawning adults and rearing juvenile salmonids. Annual summary reports describing the monitoring and implementation of plan activities will be submitted to the EC and consultees for review. DWR will compile these annual reports at five year intervals in the

Lower Feather River Habitat Improvement Plan Report that is submitted to the Commission.

DWR and the Agencies agree that by improving the quality of spawning and rearing habitat in Moe's Ditch and Hatchery Ditch, and creating five additional side channel complexes, there will be an increase in the amount of steelhead and spring-run Chinook spawning and rearing habitat. In the PDEA, the improvements to Moe's Ditch and Hatchery Ditch were included in the Proposed Action,[12] and were found to be beneficial.[13] The additional side channel improvements were included in the PDEA under Alternative 2,[14] and were also determined to be beneficial.

e. Structural Habitat Supplementation and Improvement Program (Article A104)

The Oroville Facilities currently block the upstream contribution of large woody debris in the Lower Feather River. This has contributed to a reduction in structural habitat and habitat complexity in the lower Feather River, particularly in the Low Flow Channel. Study Plan G2 results indicated that areas within the Low Flow Channel lack abundant quantities of large woody debris. The High Flow Channel would also benefit from large woody debris and other structural habitat placement in the Low Flow Channel as high flows would mobilize large woody debris and provide a large woody debris recruitment source into the High Flow Channel.

[12] PDEA § 3.2.2.6, at p. 3-35.
[13] *Id.* at Table 5.3-1, at p. 5.3-11; pp. 5.5-53 to 5.5-57; Table 5.7-4 at p. 5.7-19.
[14] *Id.* § 3.3, at p. 3-43; pp. 5.5-53 to 5.5-57; Table 5.7-4 at p. 5.7-19.

The program objectives for the Structural Habitat Supplementation and Improvement Program are to support the restoration and improvement of salmonid rearing habitat in the lower Feather River below Oroville Dam by providing instream cover and increasing the salmonid rearing habitat quality of shallow-edge habitats within riffles, glides, and pools, where appropriate along the lower Feather River. The primary target for these actions would be steelhead and spring-run Chinook salmon juveniles.

To meet the program objectives, DWR will improve or provide additional salmonid rearing habitat in the lower Feather River by creating additional cover, edge, and channel complexity through the addition of structural habitat, including large woody debris, boulders, and other native objects. Large woody debris will be multi-branched trees at least 12 inches in diameter at chest height and a minimum of 10 feet in length with approximately fifty percent of the structures containing intact root wads. The large woody debris or other native materials will be placed within the river to maximize the in-stream benefit at lowest minimum flow with the root wad, if attached, oriented upstream.

As part of this program, DWR will develop a Structural Habitat Supplementation and Improvement Program Plan. The plan will be developed in consultation with the EC, including specifically U.S. Fish and Wildlife Service, NMFS, and Fish and Game. An important part of the plan development is the analysis of safety issues to avoid unreasonable risks to the safety of river users. DWR will complete annual summary reports describing monitoring and implementation of plan activities for the EC and consulted agencies to review.

DWR will compile these annual reports every five years as part of the Lower Feather River Habitat Improvement Plan Report that is submitted to the Commission.

The PDEA included a large woody debris program in the Proposed Alternative. Although the large woody debris program did not encompass the variety of instream structural materials now included in the Structural Habitat Supplementation and Improvement Program Plan, the concept of providing instream cover and increasing channel complexity is consistent with the large woody debris program analyzed in the PDEA, which was found to be beneficial.[15] In fact, the PDEA found that "[p]roposed PM&E measures with implementation of the Proposed Action and Alternative 2 affecting the lower Feather River, such as large woody debris and gravel supplementation combined with side-channel habitat enhancement and increased minimum flows in the Low Flow Channel under Alternative 2, would likely provide significant improvements in the quantity and quality of salmonid habitat in the lower Feather River," with negligible adverse effects for warmwater species.[16]

f. Fish Weir Program (Article A105)

Habitat accessible prior to the development of dams on the Feather River and its tributaries allowed for spatial separation of spring and fall-run Chinook salmon spawning as identified in the Initial Information Package and Study Plans F9, F10 and F15 Reports. The presence of Oroville Dam and other upper Feather River dams and associated facilities block passage of migratory fishes

[15] PDEA, Table 5.3-1 at p. 5.3-11; Table 5.5-6 at pp. 5.5-45 to 5.5-47; p. 5.7-19.
[16] *Id.* at p. 5.5-56.

and cause spring-run and fall-run Chinook salmon to share spawning habitat in the Lower Feather River. This has created a situation that has allowed for the potential of spring-run and fall-run Chinook to genetically interbreed (introgression) at an increased level than what would have occurred naturally, thereby potentially affecting the genetic integrity of both races. Recent genetic studies have indicated that spring-run Chinook salmon in the Feather River genetically overlap with fall-run but may have some distinct spawning chararcteristics from fall-run Chinook salmon. Spring-run Chinook salmon are generally considered to begin their spawning a few weeks prior to the fall-run Chinook salmon.

The reduced amount of spawning habitat available in the lower river results in an increased rate of redd superimposition (subsequent spawning on top of an existing redd) which causes increased rates of egg and alevin mortality. Early spawners are proportionally more exposed to this productivity loss than later spawners, which reduces overall spring-run Chinook salmon productivity in the lower Feather River. Increased competition for limited spawning habitat also contributes to increased rates of pre-spawn mortality.[17] The Settlement Agreement Fish Weir Program provides for two fish barrier weirs; one that will determine the abundance of early returning adult life history behavior of Chinook salmon (phenotypic spring-run) and steelhead in the Low Flow Channel (anadromous fish monitoring weir) and the second fish barrier weir that will spatially separate spring-run and fall-run in the Low Flow Channel to create a dedicated spawning preserve to protect the spring-run Chinook salmon.

[17] PDEA, chapter 5-5; p. 5-7.19.

It is important that the fish monitoring weir be installed first to allow sufficient time to gather more information on the migration timing and abundance of early returning adult life history behavior of Chinook salmon (phenotypic spring-run), fall-run and steelhead adults into the Low Flow Channel. Counting all spring-run, fall-run and steelhead entering the Low Flow Channel will provide the best information on which to measure the success of various actions targeted at improving spawning and rearing habitat in the lower river and will also improve the quality and completeness of the baseline data necessary to develop the segregation weir plan. This is phase one of the Fish Weir Program. The Settlement Agreement provides that annual reports will be submitted to the EC to facilitate communication between the Licensee and EC, including specifically U.S. Fish and Wildlife Service, NMFS, and Fish and Game. This will allow the Licensee, in consultation with the Agencies and the EC, sufficient time to properly evaluate the proper placement of a Chinook segregation weir, which is phase 2 of the Fish Weir Program. If appropriate and agreed to by NMFS, the counting weir may be used for partial temporal and/or spatial segregation of spawning fish prior to the construction of the second phase weir. This could have some positive early benefits to these runs.

The location selected for the implementation of the second phase fish segregation weir will be designed to isolate and dedicate an amount of spawning habitat adequate to meet the spring-run Chinook salmon population quantified in phase one. Dedication of an adequate quantity of spawning habitat for the spring-run population will result in a reduction in the rate of redd superimposition

and the associated egg and alevin mortality as well as a reduction in the pre-spawn mortality rate contributed by elevated levels of competition for limited spawning habitat. The segregation weir will be operated to pass only early returning adult Chinook salmon (phenotypic spring-run) which will substantially reduce the rate of genetic introgression which should reduce or potentially eliminate the incremental degradation of the genetic distinctness of the run. Every five years DWR will compile these annual reports in the Lower Feather River Habitat Improvement Plan Report that is submitted to the Commission for information.

A fish barrier weir was included in the Proposed Action in the PDEA,[18] and was found to be beneficial.[19]

g. Riparian and Floodplain Improvement Program (Article A106)

Riparian vegetation along the Feather River and in the Oroville Wildlife Area has been affected by a number of causes stemming from the disruption of natural geomorphic processes. These include historic hydraulic mining, historic and current land uses, flood control levees, flow regulation, and the presence of dams including Oroville Dam. The dam blocks sediment recruitment from the upstream basin and has changed the high flow frequencies; flow regulation has altered peak flows, decreased winter flows, increased summer flows, and changed ramp down rates.

As part of the Settlement Agreement, DWR has agreed to investigate and implement projects to improve riparian habitat and habitat for associated

[18] PDEA at p. 3-35.
[19] *Id.* at Table 5.5-6 at p. 5.5-45.

terrestrial and aquatic species and connect portions of the Feather River to its floodplain within the Oroville Wildlife Area. Development of the floodplain habitat should result in an improvement in the quantity and quality of juvenile salmonid rearing habitat and high flow event velocity refuge for juvenile salmonid rearing. This program should result in an incidental improvement in habitat for other wildlife as well. The program will be implemented in four phases by the Licensee in consultation with the EC, including the resource agencies. Phase 1 would consist of a screening level analysis of potential projects and identification of the recommended alternative. Phase 2 would consist of implementation of the Phase 1 recommended alternative. Phase 3 would reevaluate other potential feasible projects including those considered under Phase 1 and identify the Phase 3 recommended alternative. Phase 4 would consist of implementation of the Phase 3 recommended alternative. Implementation will include a full scope and cost analysis of the recommended alternative as well as project level environmental documentation, permitting, design, and construction.

The purpose of this program is to improve riparian habitat and connect portions of the Feather River with its floodplain in the Low Flow Channel and the High Flow Channel within the Oroville Wildlife Area. Higher priority will be given in the screening level analysis to those projects that maximize benefits for all species and habitats including restoring riparian vegetation and the riparian corridor, restoring habitat for terrestrial species (including special status species), reconnecting the river to its floodplain, and restoring/enhancing riparian and channel habitat for fish and other aquatic species.

DWR and Fish and Game will work with gravel operators to seek to reduce costs of gravel removal and the earthwork component of this program. The abilities and limitations of the gravel extraction will guide the scope, timeframe and magnitude of the Riparian and Floodplain Improvement Program. The Settling Parties have agreed to a cost cap of $5 million for this Program, with the understanding that this cap does not include any net profits realized from any sales of gravel that may be applied to fund the Program.

The Riparian and Floodplain Improvement Program was not included or analyzed in the PDEA. However, impacts of the Project on riparian and floodplain habitat were studied in Study Plan T35. Based upon those study results, the Riparian and Floodplain Improvement Program would be beneficial to native fish and wildlife species.

h. Feather River Fish Hatchery Improvement Program (Article A107)

The Feather River Fish Hatchery is currently operated by Fish and Game in conjunction with DWR. Hatchery operations have been successful in meeting production goals under the current license. In the Settlement Agreement, DWR agrees to ensure the continued operation of the Hatchery, in cooperation with Fish and Game, for the production of anadromous salmonids.

DWR further agrees, as part of the Settlement Agreement, to prepare a comprehensive management plan for the Feather River Fish Hatchery within 2 years of license issuance. This plan will set forth the production goals for the Feather River Fish Hatchery, and the protocols that will be utilized to meet these goals. A full description of the Feather River Fish Hatchery operations will be

provided, including egg taking, hatching, rearing, and release methods and locations. The disease management procedures will be described, explaining the various diseases of concern at the Feather River Fish Hatchery, and the activities employed to address these concerns.

The Proposed License Article for the Feather River Fish Hatchery also includes temperature targets for the first ten years following license issuance, and a baseline temperature requirement that DWR agrees not to exceed in any circumstance (A107.1). The baseline temperature requirements in Table 107A are the equivalent to temperatures required by the 1983 Agreement between DWR and Fish and Game and currently required by the Oroville license. Table 107A represents the upper limit of the 1983 agreement temperatures for the hatchery. Historically, current license temperatures are sufficient for the hatchery to meet its production goals. However, DWR and the Agencies agree that cooler temperatures could assist the Hatchery management in managing for disease outbreaks.[20] The new proposed temperatures provide an added level of assurance that the Hatchery will continue to meet its goals. It should improve the probability that the Hatchery will meet its production goals on an annual basis by potentially reducing losses due to disease.

A Hatchery and Genetics Management Plan will be prepared to identify the effects of the hatchery program on Endangered Species Act-listed salmonids, as well as identify methods to reduce negative impacts (A107.2). A monitoring program will be developed to study Feather River Fish Hatchery stocked salmonids, as well as a plan to utilize the results of studies and research in future

[20] PDEA at p. 5.5-29.

Feather River Fish Hatchery management. This plan will also include a procedure for coordinating the Feather River Fish Hatchery operations with those of other Central Valley salmonid hatcheries. Annual summary reports will be prepared, and a comprehensive report of the Feather River Fish Hatchery Management Program will be prepared every 5 years for public and EC review.

The Settlement Agreement also includes a commitment for DWR to expand or improve the existing water disinfection system for the Feather River Fish Hatchery spawning and rearing area, if this is determined to be necessary due to upstream fish passage or disease issues (A107.3).

Finally, the Settlement Agreement requires DWR to provide the operational and maintenance funding to support the Feather River Fish Hatchery programs identified in the Settlement Agreement (B104). This will include a comprehensive inspection of the Feather River Fish Hatchery facilities at least once every 5 years to identify maintenance and repair needs, as well as possible facility improvements (A107.5). The resulting report of this inspection will be a component of the Lower Feather River Habitat Improvement Plan.

The primary difference between the Feather River Hatchery PDEA (No-Action and Proposed-Action) and the Settlement Agreement is an agreement to target lower temperatures for the Hatchery Intake during an interim period of time until the temperature control improvements detailed in Article A108 are completed and to accept these lower temperatures as compliance targets after the improvements are in place. Other changes from the PDEA are mostly of detail and specificity. Both documents provide a commitment by DWR to operate

the Feather Fiver Fish Hatchery to spawn and stock salmonids in support of the Feather River anadromous fisheries, as well as the recreational fishery at Lake Oroville. However, the Settlement Agreement also provides much more detail in how this will be achieved with specific responsibilities for DWR to accomplish, along with Agency and public review, timelines, and reporting requirements. The PDEA included an adaptive management program for the Hatchery in the Proposed Alternative, and a disease management and marking program in Alternative 2. These were found in the PDEA to be beneficial.[21]

i. Flow and Temperature Improvements (Article A108)

The Settlement Agreement includes a Proposed License Article (A108.1) establishing an increased minimum flow from the current 600 cfs to a new minimum flow of 700 cfs in the Low Flow Channel during most of the year, but increasing flow to 800 cfs during the Chinook salmon spawning season from September 9 through March 31. The volume of increased flows was determined from the results of instream flow investigations (Study Plan F16 Phase 2 report) and spawning habitat utilization studies (Study Plan F10 Task 2B and Study Plan F10 Task 2C reports) performed by DWR. The Settlement Agreement also includes an early implementation item to begin studies for the refurbishment or replacement of the river valve. Because this measure precedes license issuance, it is included in Appendix B of the Settlement Agreement, and is discussed below in Section B108.

[21] PDEA at Table 5.7-4 at p. 5.7-19.

Spawning habitat utilization studies indicated that redd superimposition in the Low Flow Channel is high compared to other Chinook salmon bearing rivers in the Central Valley, and that the rate of redd superimposition has increased since the mid-1990s. High numbers of Chinook salmon spawners in the Low Flow Channel also result in elevated levels of competition for habitat, which potentially contributes to increased rates of Chinook salmon pre-spawn mortality.[22]

Instream flow investigations utilizing instream flow incremental methodology and physical habitat simulation models determined that current flows of 600 cfs in the Low Flow Channel (Upper Reach) provide most but not all the maximum area of suitable spawning habitat potentially available to Chinook salmon. Specifically, DWR determined that the maximum weighted usable area (WUA) for Chinook salmon spawning would occur at approximately 800 cfs (Figure 1).

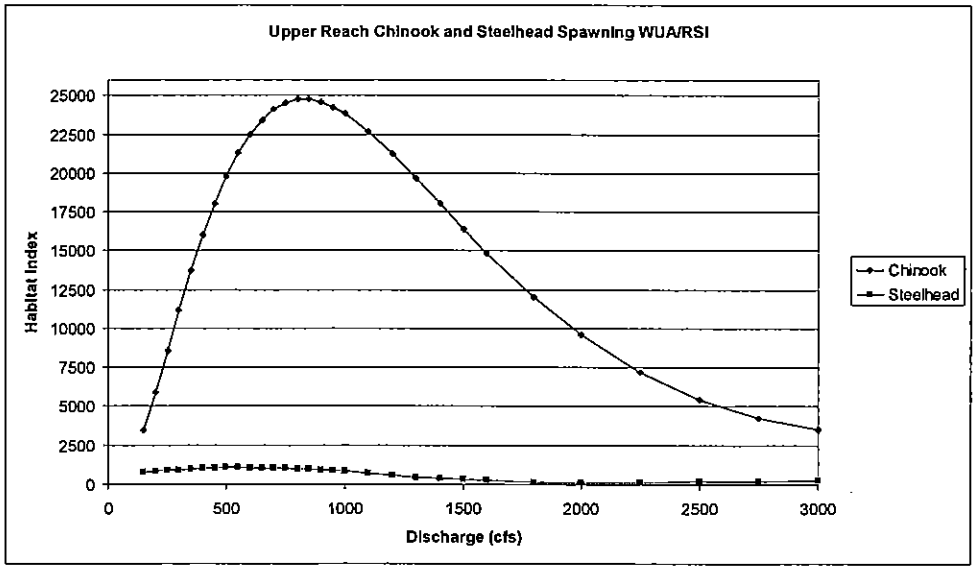


Figure 1. Upper Reach Chinook Salmon Spawning WUA/RSI.

[22] Study Plan F10, Task 2B report.

As explained above, Article A102 proposes a gravel supplementation program, under which a substantial amount of Chinook salmon spawning substrate (i.e., gravel and cobble) would be introduced to the lower Feather River. Introduction of gravel likely would alter the channel morphology (i.e., channel cross section), especially within spawning riffles and runs. High Flow Channel flows will remain the same as the existing license, consistent with the 1983 DWR and California Department of Fish and Game Operating Agreement to continue to protect Chinook salmon from redd dewatering (A108.2).

The Proposed License Article 108 would operate the Oroville Facilities to achieve new water temperature objectives (Table 1) for the Low Flow Channel at the Robinson Riffle (River Mile 61.6), near where the Low Flow Channel meets the High Flow Channel. The proposed water temperature objectives in Table 2, measured at the southern FERC project boundary, will be evaluated for potential water temperature improvements in the High Flow Channel. DWR will study options for Facilities Modification(s) to achieve those temperature benefits.

During the study plan process water temperatures in the Low Flow Channel and High Flow Channel were identified as potential contributing stressors for anadromous salmonids.[23] Operation of the Oroville Facilities to meet the water temperature objectives identified in the Settlement Agreement would lower water temperatures in the Low Flow Channel improving the quality and increasing the quantity of available coldwater fisheries habitat in the lower Feather River.

[23] Study Plan F10 Task 1D, Study Plan F10 Task 2C, Study Plan F10 Task 3B, and Study Plan F10 Task 4B.

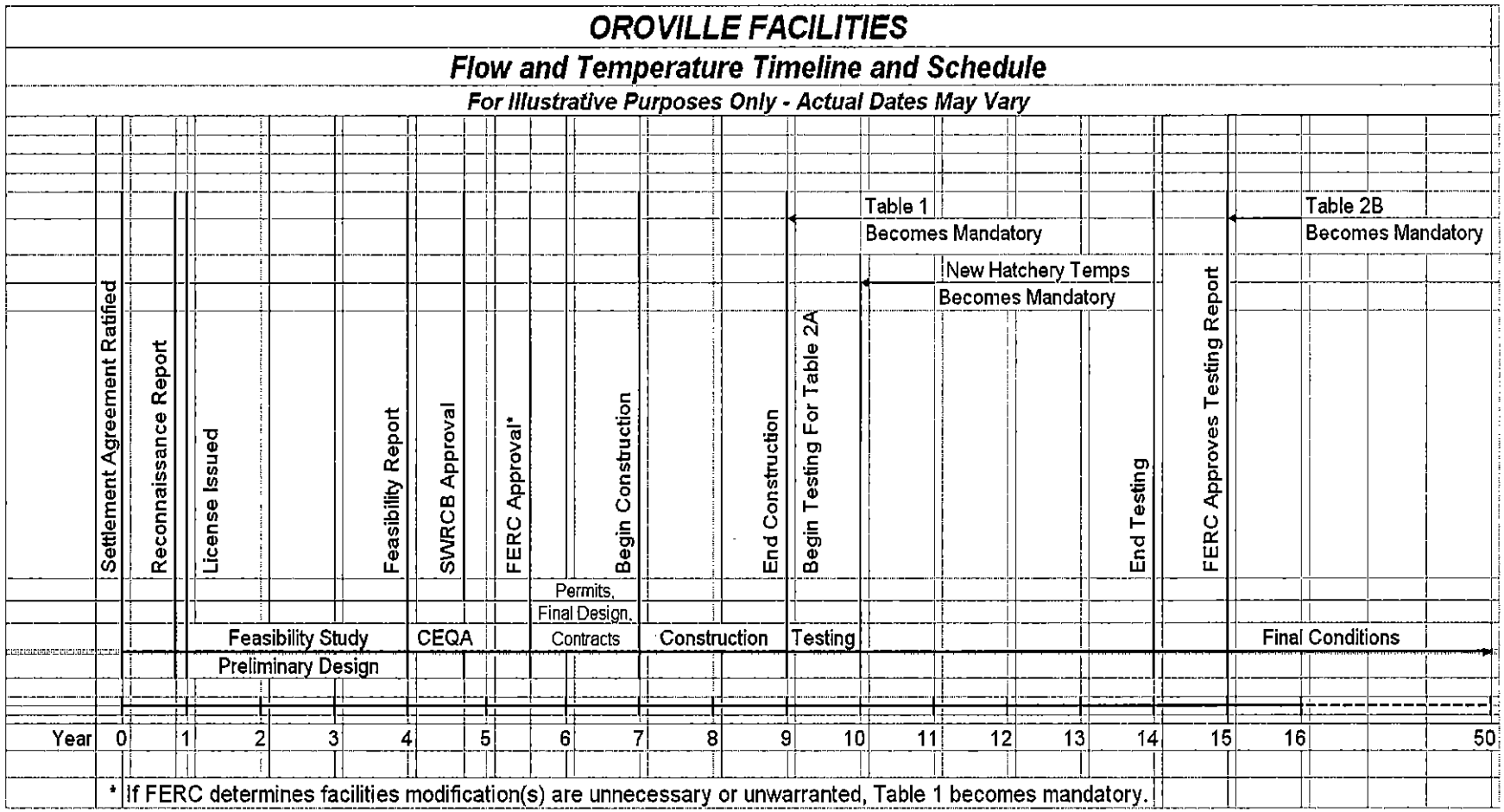
In order to meet the Table 1 Low Flow Channel water temperature objectives prior to the Facilities Modification(s), DWR would implement a series of actions described in the Proposed License Article to reduce water temperatures. If DWR is unable to meet the Table 1 water temperature objectives by implementing those water temperature control actions, DWR will not be in violation of the license terms.

Under the Settlement Agreement, DWR is committing to a Feasibility Study and Implementation Plan to improve temperature conditions for spawning, egg incubation, rearing and holding habitat for anadromous fish in the Low Flow Channel and High Flow Channel (A108.4). The Plan will recommend a specific alternative for implementation and will be prepared in consultation with the resource agencies. The Licensee's capital cost estimate for the Facilities Modification(s) is not expected to exceed $60 million. The Plan would be submitted to the Commission for approval. Once the Facilities Modification(s) are complete, the Table 1 temperatures will become a license obligation (A108.1(d)). There would be a testing period of at least five years in length to determine whether the High Flow Channel temperature benefits are being realized (A108.5). At the end of the testing period, DWR will prepare a testing report that may recommend changes in the facilities, compliance requirements for the High Flow Channel and the definition of Conference Years (those years where DWR may have difficulties in achieving the temperature requirements due to hydrologic conditions.)

The water temperatures in Table 2, as modified, will be targets during a five-year testing period following completion of Facilities Modification(s) anticipated in the Proposed License Article. Table 2 water temperatures will be developed and tested over a period of time after the implementation of the Settlement Agreement due to the uncertainties of the effectiveness of potential water temperature control devices as well as to reflect the operational complexity of managing water temperatures downstream of the confluence of the Low Flow Channel and the Thermalito Afterbay outlet. Dynamic water temperatures in both the Low Flow Channel and at the Thermalito Afterbay outlet and the resulting water temperature from the proportional blending of these waters to determine the resulting High Flow Channel water temperature, as well as the delay in time from the implementation of a water temperature control action to a water temperature change in the High Flow Channel, represent some of the operational challenges associated with compliance with a Table 2 water temperature objective. These challenges require the phased development of the Table 2 water temperature objective and likely, a revision to Table 2 prior to Table 2 becoming a compliance obligation.[24]

[24] Figure 2 on page 31 is a Flow and Temperature Timeline and Schedule which illustrates the agreed-upon phased approach.

Figure 2


OROVILLE FACILITIES
Flow and Temperature Timeline and Schedule
For Illustrative Purposes Only - Actual Dates May Vary
Settlement Agreement Ratified
Reconnaissance Report
License Issued
Feasibility Report
SWRCB Approval
FERC Approval*
Begin Construction
End Construction
Begin Testing For Table 2A
End Testing
FERC Approves Testing Report
Table 1 Becomes Mandatory
Table 2B Becomes Mandatory
New Hatchery Temps Becomes Mandatory
Permits, Final Design, Contracts
Feasibility Study
Preliminary Design
CEQA
Construction
Testing
Final Conditions
Year 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 50
* If FERC determines facilities modification(s) are unnecessary or unwarranted, Table 1 becomes mandatory.

The purpose of the "conference year" provision for a relaxation of the water temperature table requirements is to accommodate combinations of water year types and low reservoir storage conditions, when it is not possible for the facilities operations to meet the water temperature goals with available coldwater pool resources in the reservoir (A108.6).

The PDEA, in Alternative 2, considered an increase of minimum flows to 800 cfs, and lower temperature objectives for Robinson Riffle.[1] These were found in the PDEA to have "additional unquantified beneficial effects" beyond the Proposed Alternative,[2] though the operational costs of releasing 800 cfs year round are substantial. Accordingly, 800 cfs for spawning season, and 700 cfs for the rest of the year, was determined by the Settling Parties to be the best alternative for balancing resource goals and Project operations. Although "unquantified," the Settling Parties believe the agreed-to measures for Flow/Temperature to Support Anadromous Fish will be of substantial benefit to anadromous fish.

j. Reservation of Fishway Authority (Article A109)

A subset of the Settling Parties and Pacific Gas and Electric Company have reached a draft agreement on a Habitat Expansion Agreement to address the blockage of anadromous fish due to several dams on the Feather River. The draft agreement is attached to this Settlement Agreement as Appendix F, and is discussed in more detail later in this Explanatory Statement. The Settling Parties agree, in Section 4.4 of the Settlement Agreement, that if DWR enters into and

[1] PDEA §§ 3.3.3.1, 3.3.3.2, at pp. 3-44 and 3-45.
[2] *Id.* at Table 5.5-6, at p.5.5-46.

complies with a final, signed agreement in substantial conformity with Appendix F, its obligations with respect to the blockage or passage of fish are satisfied.

Because the Habitat Expansion Agreement encompasses the possibility of off-site mitigation, the Settling Parties agree that it may not be an appropriate License requirement depending on where the habitat actions actually occur. Consequently, the Settling Parties propose not to include the Habitat Expansion Agreement as a FERC license requirement. Consummation of the Habitat Expansion Agreement will require: (i) a fully executed agreement among the parties to that agreement; and (ii) an agreement between DWR and Pacific Gas and Electric Company regarding the allocation of responsibilities between the two licensees. Negotiations of these two agreements are ongoing.

In the meantime, NMFS and the U.S. Fish and Wildlife Service (Services) have agreed to exercise their authority to prescribe fishways pursuant to Section 18 of the FPA by reserving that authority during the term of the license (A109). The Services have also agreed, as provided in Article A109, that any further exercise of that reservation of authority will only be as provided in the Habitat Expansion Agreement (*see also* Settlement Agreement Section 4.4). The Habitat Expansion Agreement (*see* Appendix F, ¶ 12) provides that the Services will not seek to reopen the licenses for fish passage as long as DWR and Pacific Gas and Electric Company comply with their obligations under the Habitat Expansion Agreement. The Settling Parties understand that the Services may include in their preliminary Section 18 reservations of authority the ability to modify the reservations, and may submit fishway prescriptions, in the event that

the Habitat Expansion Agreement and the underlying agreement between DWR and Pacific Gas and Electric Company are not executed within 30 days following FERC's issuance of its Final EIS (*see* Settlement Agreement Section 4.4). Assuming, however, that the necessary agreements are in fact timely executed, the Services' final reservations of authority will conform to Article A109.[3]

k. Lake Oroville Warm Water Fishery Habitat Improvement Program (Article A110)

Angling for warm water game fish is an important component of the recreation that occurs at Lake Oroville. Through the Lake Oroville Warm Water Fishery Habitat Improvement Program, DWR will improve the warm water fish habitat in Lake Oroville that supports warm water game fish such as black bass and channel catfish. This is an improvement to a similar program that exists under the current license for the Project.

This habitat improvement program is intended to increase and/or improve the structural complexity of the Lake Oroville fluctuation zone, which provides benefits to warm water fish that use these areas for spawning and rearing. This would be accomplished by constructing habitat with materials such as boulders, weighted pipes, riprap, artificial structures designed for fish habitat, Christmas trees, logs and other large woody debris, and by planting flood-tolerant vegetation such as willow trees, button bush, and cattails, as well as possibly planting annual grasses during the drawdown period.

[3] The Settling Parties did not intend that the reservation language in Article A109 – which includes "measures to determine, ensure, or improve the effectiveness of such prescribed fishways" – be interpreted to require studies or other measures beyond the authority of FPA Section 18.

This program will be implemented over the license term in 7-year intervals, with $280,000 being spent over each 7-year period, for a total of approximately $2 million over the term of a 50-year license (the final 7-year period will be adjusted as needed to coincide with the license expiration). Within each 7-year interval, a minimum of 75% of the $280,000 budget must be spent on the construction of "habitat units," as distinct from administrative costs such as planning, monitoring, and reporting. The "habitat unit" is a term that was developed in the Settlement Agreement negotiations, and it refers to a quantifiable measure of fish habitat. A habitat unit is the amount of material and labor needed for $2,000 of actual habitat construction, and DWR will construct, on average, at least 15 habitat units each year, over each 7-year interval.

Some examples of these habitat improvement projects would be brush piles (or brush shelters), flood tolerant trees and annual grasses, and channel catfish spawning structures.

Brush Shelters. Brush shelters consist of various materials including discarded Christmas trees, trees/brush cut from the upland areas adjacent to or near Lake Oroville, and artificial habitat structures made of plastic. The brush shelters are anchored to the lakebed using steel fence posts, concrete blocks, or other suitable materials, to keep the brush shelters from floating away when inundated during the spring and summer. Typically brush shelters are built as separate units, and they are installed in clusters in the back of coves with shallow sloping banks. These are common spawning areas for black bass, particularly largemouth bass, so these brush shelters would be located to increase spawning

success (nest protection from wave action, satisfy bass preference for spawning near structure), as well as increase post-spawn survival of juvenile bass. Projects should be targeted in the elevation range between 775' to 875' to provide spawning benefits at a variety of ranges, and because during the summer and fall, young bass inhabit a zone down to a depth of about 25', so improvement projects conducted in this range will provide benefits to bass when lake levels are in the range of about 800' to 900'. An evaluation of site specific conditions such as slope, soil type, exposure, access, and other factors (cultural resources, existing trees, geologic formations, etc.) will determine the specific placement and types of structures.

Flood-Tolerant Trees and Annual Grasses. Native trees such as willow (*Salix spp.*) and buttonbush (*Cephalanthus occidentalis*) would be planted in the fluctuation zone in the 850'–890' elevation range. These trees can survive periodic inundation as well as dry conditions found in the fluctuation zone during the summer and fall, particularly if they survive their first 1 or 2 years and establish a deep root system. When successfully established, these trees provide large amounts of structural complexity over a long period of time and have the added benefit of enhancing the aesthetics of the reservoir fluctuation zone. The 850' elevation is the lowest these trees should be planted because any planted below this elevation stand the possibility of being inundated year-round (on a wet year) due to flood storage operations at the lake.

One of the most important factors for success in establishing flood tolerant trees in the fluctuation zone is survival during the first 1-2 years after planting, and

the lack of survival is usually related to lack of soil moisture. Most of the fluctuation zone is lacking in summertime water sources (streams, springs) in areas that are ideal for warm water fish habitat enhancement (back of coves, shallower slope, 850' – 890' range). In addition, this zone is subjected to several months of very hot and dry conditions from mid-July through mid-October, and it is during this time that most newly- planted trees will not survive. Under these conditions, it is often beneficial to provide irrigation, if feasible.

Annual grasses that germinate in the fall and grow during the winter could also be planted to provide microcover for juvenile fish, with the seed being spread with either hand spreaders, or in larger areas (20-50 acres) by airplane. Use of fertilizers and disking may be conducted to increase success.

Channel Catfish Spawning Structures. Channel catfish prefer to spawn in secluded, "cave-like" locations. Projects designed to benefit channel catfish would primarily involve the placement of 3-4 ft. sections of 9-18 in. diameter concrete and PVC pipe, which makes excellent spawning habitat. Other materials may be substituted for concrete and PVC pipe based on availability, including pieces of culvert, steel pipe, buckets, and other discarded items found around the Oroville Field Division. Rock rubble and other materials that create similar cavities may also be used, and these "pipe-caves" would be placed in the same areas and elevations identified for brush shelters.

Planning and Monitoring. Within the first year of each 7-year interval, DWR will prepare a plan for the habitat improvement projects to be completed

during that interval, and this will be presented to the EC for comments and recommendations, and submitted to FERC for approval.

The success of these projects will be evaluated through monitoring of the habitat units, and the fish utilization of these units. The habitat units will be assessed for their durability, longevity, and cost-effectiveness, and fish utilization will be monitored through the use of snorkel surveys, electrofishing, creel surveys, or other suitable methods. Results of this monitoring will be used in the planning of future projects such as construction methodology and site location. Informational reports of the monitoring results will be provided to FERC every 2 years summarizing the habitat units completed over that time period, except during the final year of each 7-year period, when a summary report for the entire 7-year period will be submitted to FERC; this report will provide a summary of the monitoring data as well. These reports will be provided to the EC for review and comments prior to submission to FERC.

The existing warm water fishery program for the Project was included in the No-Action Alternative of the PDEA.[4] Study Plan SP-F3.1[5] results indicate that continuation of this program, with the added improvements, will benefit warm water fish at the Project.

I. Lake Oroville Cold Water Fishery Improvement Program (Article A111)

Lake Oroville lacks suitable habitat to support self-sustaining populations of cold water sport fish, such as rainbow trout, brown trout, Chinook salmon, and

[4] PDEA at p. 3-21.
[5] Study Plan SP-F3.1 Task 2a, 3a Report: Fish Species Composition: Lake Oroville, Thermalito Diversion Pool, Thermalito Forebay.

coho salmon, which require cold, flowing water, and clean gravels. Although some of Lake Oroville's tributaries have this habitat, they do not provide enough to support the coldwater sport fishery at a level that is desirable to Lake Oroville anglers. Therefore, stocking hatchery fish is necessary to maintain these cold water fish populations.

Through the Lake Oroville Cold Water Fishery Improvement Program, DWR will stock cold water fish in Lake Oroville to improve the cold water sport fishery, which may increase recreational opportunities and tourism at the reservoir. This is an improvement of a similar program that exists under the current license for the Project.

Within one year following issuance of the new license, in consultation with the EC, DWR will develop a Cold Water Fisheries Management Plan for Lake Oroville for submission to FERC. This plan will provide for the stocking, management, and monitoring of salmonids at approximately the same level of stocking as under the existing license, which is 170,000 (+/- 10%) yearlings (or their equivalent) per year. Average costs are not to exceed $75,000 annually. The plan will focus on the first 10 years of cold water fish stocking, and will be revised every 10 years thereafter. DWR will submit a monitoring report to the EC for review and recommendations every two years, which will then be filed with FERC for information, along with EC recommendations and proposed modifications.

The existing cold water fishery program was included in the No-Action Alternative of the PDEA.[6] Study Plan SP-F3.1[7] results indicate that the continuation of this program, with the added improvements, will benefit cold water fish at the Project.

m. Comprehensive Water Quality Monitoring Program (Article A112)

Water quality in Project waters is affected by upstream tributaries. Physical, chemical, and biological constituents contributed to Lake Oroville from upstream tributaries can settle from the water column in the reservoir arms. Water quality near the dam is indicative of water quality in the main body of the reservoir, and determines the quality of water released to the Feather River.[8] The Settling Parties agree that monitoring would allow DWR to assess water quality from upstream areas, Project waters, and outflow from the Project boundary. The Proposed Water Quality Monitoring Program is an expansion of the existing program. An evaluation of the water quality effects of the Project were analyzed in the PDEA and Study Plans.[9]

The Comprehensive Water Quality Monitoring Program is intended to expand the program for data collection to document water quality conditions in Project-affected waters, including contributions from upstream sources, limnologic changes occurring within impoundments, pathogen levels at recreation sites, effects of Project operations on Feather River thermal regime, and long-

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[6] PDEA at p. 3-21.
[7] Study Plan SP-F3.1 Task 2a, 3a Report: Fish Species Composition: Lake Oroville, Thermalito Diversion Pool, Thermalito Forebay.
[8] Study Report W1.
[9] PDEA § 5.4, Study Plan W1: *Project Effects on Water Quality Designated Beneficial Uses for Surface Waters*; Study Plan W2: *Containment Accumulation in Fish, Sediments, and the Aquatic Food Chain.*

term effects of the Project on water quality from present and future operations. DWR will develop and implement a comprehensive water quality monitoring program for surface waters within the Project area, through which DWR will track potential changes in water quality associated with the Project, and collect data necessary to develop a water quality trend assessment through the life of the license. Water quality monitoring will focus on the identification of those organic and inorganic constituent and physical parameter levels that may affect beneficial uses for surface waters.

The Comprehensive Water Quality Monitoring Program will include components to sample water chemistry, fish tissue bioaccumulation, recreation site pathogens and petroleum product concentrations, water temperatures, bioassays, and aquatic macroinvertebrate monitoring. In the first five years of the initial program, DWR will collect, analyze and compile the water quality data into annual reports, which will be provided to the EC and Butte County Health Department. Following completion of all data collected for year five, DWR will compile a summary report of the initial Program, which shall be provided to the Commission, the EC, and Butte County Health Department. After consultation, DWR will submit recommendations to the Chief of the Division of Water Rights, California State Water Resources Control Board before filing the Program with the Commission.

Under the Program, water quality data will be analyzed and compiled by DWR into five-year reports and distributed to the EC.

These elements of the Water Quality Program, in part, reflect the intent of the No-Action and Proposed Action, as described in the PDEA.[10] Currently, DWR monitors water quality for several constituents; however, a comprehensive monitoring program is proposed under the new license to better monitor water quality parameters.

n. Monitoring of Bacterial Levels and Public Education (Article A113)

Some stakeholders raised the issue of water quality and bacteria levels at certain swimming areas within the Project, and this was studied in Study Plan SP-W1. DWR, in coordination with the appropriate public agencies, will perform monitoring of bacteria levels at swim areas. DWR, upon input from appropriate agencies, shall place notices notifying the public if unsafe levels of bacteria are present in the water. DWR, in coordination with Parks and Recreation, will also place notices educating the public on sanitary measures to prevent contamination of the water. In addition, DWR, in consultation with the relevant public heath agencies and state and regional water boards, will determine if a companion public education program designed to inform the public about potential sources of bacteria in the water is necessary. This measure is consistent with the intent of the Proposed Action described in the PDEA.[11] DWR's obligations are limited to $124,000 in the first five years following license issuance, and $23,500 per year after that.

[10] PDEA at pp. 3-37.
[11] *Id.*

o. Public Education Regarding Risks of Fish Consumption (Article A114)

During the collaborative process, some stakeholders expressed concern regarding public awareness of risks of fish consumption, and this was studied in Study Plan W2. DWR, in consultation with the Office of Environmental Health Hazard Assessment, State Water Resources Control Board, and Central Valley Regional Water Quality Control Board, will post notices at all boat ramps and other locations within the Project boundary notifying the public about health issues associated with consuming fish taken from within the Project waters. This measure is consistent with the intent of the Proposed Action described in the PDEA.[12] DWR shall not be required to spend more than $20,800 in the first five years of the program, or more than $1,800 per year after the first five years.

p. Oroville Wildlife Area Management Plan (Article A115)

DWR will develop, in conjunction with Fish and Game and Parks and Recreation, and in consultation with the EC and the U.S. Fish and Wildlife Service, a management Plan for the Oroville Wildlife Area for Commission approval. DWR's costs for developing the initial Plan shall not exceed $200,000. The Proposed License Article identifies a number of required Plan elements. The Plan will be reevaluated every 5 years.

Although Article A115 only identifies Plan elements, the Settling Parties discussed a number of specific issues in the course of settlement negotiation and consequently anticipate that the Plan will address these issues. For example,

[12] *Id.*; Study Plan W2.

the Plan will specifically address avoidance measures to minimize Thermalito Afterbay water level fluctuation effects on nesting grebes.

In addition, the PDEA[13] included the following Resource Action or Biological Assessment Conservation Measures to reduce recreational related impacts to wildlife:

- Maintain and enforce existing five-mph boat speed limit on the Thermalito Afterbay north of Highway 162 to minimize recreational impacts to lacustrine and wetland wildlife species. Existing Fish and Game regulations limits boat speeds on the *entire* Afterbay surface to five-mph. This measure of limiting enforcement of the five-mph speed limit to only that section of the Afterbay north of Highway 162 was agreed to as a compromise with Fish and Game. The land areas around the Afterbay north of Highway 162 are those that the Fish and Game proposes to manage most intensively for wildlife in the future. This measure will result in reduced recreational disturbance, which will in turn result in greater wildlife use and reduced energetic cost to wildlife (especially migratory waterfowl). DWR will install and maintain five-mph signage and associated buoys in cooperation with Fish and Game. Fish and Game will continue to provide enforcement. As part of Appendix B, Fish and Game will recommend to the California Fish and Game Commission that it rescind the 5 mph limit for the part of the Thermalito Afterbay south of Highway 162 (B107).

[13] *See* Appendix E to the PDEA.

- Develop and implement an educational program (signage) to protect giant garter snakes from being harmed by recreational users. During informal ESA consultation, U.S. Fish and Wildlife Service identified the potential take of giant garter snake (a State- and federally-listed species) by recreational users as an issue. U.S. Fish and Wildlife Service recommended educational signage placed at major recreational entry points at the Thermalito Forebay, Thermalito Afterbay, and Oroville Wildlife Area as a measure to reduce recreational take resulting from the public's fear of snakes. Accordingly, DWR will install and maintain signage in coordination with Parks and Recreation and Fish and Game.
- Restrict dog training activities and dog field trials in a portion of the giant garter snake habitat at the Thermalito Afterbay. During informal ESA consultation U.S. Fish and Wildlife Service identified the potential take (harassment/harm) of giant garter snake (a State and federally listed species) by dogs, dog training, and dog field trials near the Thermalito Afterbay. To minimize potential take, U.S. Fish and Wildlife Service recommended seasonal limitations on the areas of giant garter snake habitat open to dog trials and training activities. Accordingly, DWR will provide written notification to Fish and Game concerning temporal and spatial limits related to dog training and trials within giant garter snake habitat included in the Final Biological Opinion.

q. Oroville Wildlife Area Access (Article A116)

DWR agrees to allow reasonable access for hunting and fishing in the Oroville Wildlife Area, except where such access poses safety, security or operational risks, or adverse environmental impacts, and subject to applicable State and Federal hunting and fishing regulations and other reasonable conditions. The Settling Parties did not intend for this Proposed License Article to supersede FERC's standard license article on public access.[14] Nor did the Settling Parties intend to impose any affirmative responsibilities upon DWR to construct access facilities; rather, DWR may not prevent public fishing and hunting access except as provided in Article A116 or in FERC's standard article.

r. Protection of Vernal Pools (Article A117)

DWR will implement conservation measures required by the U.S. Fish and Wildlife Service Final Biological Opinion to protect the vernal pool habitat within the Project boundary. Vernal pool habitats can support plant and animal species protected under the federal ESA. Relicensing studies identified off-road vehicle damage to vernal pool habitats capable of supporting federally listed invertebrate and plants. Off-road vehicle use can damage vernal pools by disruption of overland flow patterns and from direct habitat destruction. The weight of the vehicle can crush or displace fairy and tadpole shrimp when present during the wet season, or destroy their cysts in the summer. The compacted soils in the resulting tire ruts are unsuitable for sustainability of the vernal pool ecology, affecting the growth of aquatic plants and algae.

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[14] *See* Standard Article 18, Form L-1, Terms and Conditions of License for Constructed Major Project Affecting Lands of the United States, 54 FPC 1799, 1804-05 (1975).

During informal consultation, U.S. Fish and Wildlife Service identified off-road vehicle damage as potential take under the federal Endangered Species Act. It is anticipated that DWR's responsibilities in the Biological Opinion will include (1) the installation and maintenance of signage in coordination with the Parks and Recreation and Fish and Game; (2) inspection and prompt maintenance of vehicular barriers (primarily existing fences) in coordination with Parks and Recreation and Fish and Game; and (3) continuation of existing patrol and enforcement of vehicular closures in coordination with Fish and Game and Parks and Recreation. These measures have not changed since the license application was filed. The PDEA found these measures to be moderately beneficial.[15] However, there has been some early implementation of these measures pursuant to the Biological Assessment. Monitoring data from Spring 2005 indicates they are very successful.

s. Minimization of Disturbances to Nesting Bald Eagles (Article A118)

Bald eagles are currently protected under the State and federal Endangered Species Acts, and recreation disturbance of nesting bald eagles can result in a take under the federal ESA. For example, recreational disturbance can induce nest abandonment, loss of eggs or nestlings, reduce productivity, or result in nest relocation.[16] Several Bald eagle nest territories exist within the Project boundary. Accordingly, DWR will include the conservation measures required by the U.S. Fish and Wildlife Service Final Biological Opinion in any bald

[15] PDEA at Table 5.6-10, at p. 5.6-37.
[16] *Id.* at pp. 5.7-9, 5.7-10.

eagle nest territory management plan(s), which will be filed with the Commission for approval.

Bald eagle nest territory management plans are developed through the informal consultation process to minimize or avoid recreational impacts to nesting bald eagles. These plans are site specific and evaluate factors related to type, frequency, location, timing, duration and magnitude of potential recreation disturbance. Physical topography, distance, screening vegetation, and observed bald eagle responses to disturbance are used to develop primary and secondary zones around each nest location. Site specific conservation measures are developed during informal consultation that identifies allowable activities within the primary and secondary zones. These conservation measures are designed to minimize or avoid recreational disturbance displacement of nesting bald eagles and may include seasonal closure of existing facilities, relocation of recreational facilities, shoreline closures (signage and enforcement), and habitat protection measures.

Other than the identification of two additional bald eagle nest territories and the development/submittal of associate draft territory management plans, there have been no changes to this provision since the license application was filed in January 2005. The PDEA included the following Resource Action or BA Conservation Measures to reduce recreation related impacts to bald eagles including:

- Development and adoption of bald eagle nest territory management plans for all active nest territories.

- Annual written notice to other land management agencies of the conservation measures contained in each nest territory management plan.
- Disclosure of new bald eagle nest territory to Fish and Game and U.S, Fish & Wildlife Service within ten working days of discovery.
- Development of draft bald eagle nest territory management plans within 30 calendar days of discovery of a new nest territory. Draft plans to be submitted to both Fish and Game and U.S. Fish & Wildlife Service.
- Conduct one interagency meeting annually to evaluate and discuss the effectiveness of conservation measures contained in bald eagle nest territory management plans. DWR to invite Fish and Game, Parks and Recreation, U.S. Forest Service, U.S, Fish & Wildlife Service, Bureau of Land Management, and other agencies or organizations with a direct interest in bald eagle management issues to attend annual meeting.
- Conduct annual evaluations of bald eagle nesting success and the effectiveness of conservation measures contained in the nest territory management plans. This annual project area monitoring is to include active searches for new bald eagle nest territories and a written summary to Fish and Game and U.S, Fish & Wildlife Service of annual bald eagle production.
- Conduct mid-winter bald eagle surveys every other year. These surveys to be coordinated with Statewide and National mid-winter counts. Survey results to be submitted to Fish and Game and U.S, Fish & Wildlife Service.

The PDEA found these measures to be beneficial.[17]

t. Protection of Giant Garter Snake (Article A119)

Habitat for the giant garter snake primarily occurs in the Thermalito Forebay and Thermalito Afterbay and the Oroville Wildlife Area.[18] Water level fluctuations at the Thermalito Afterbay, maintenance activities, and recreational development and use can adversely affect the habitat of the highly aquatic giant gartner snake. Accordingly, DWR will implement conservation measures required by the U.S. Fish and Wildlife Service Final Biological Opinion to protect giant garter snakes within suitable habitat within the Project boundary.

It is anticipated that DWR's responsibilities in the Biological Opinion will include such measures as: (1) notification and consultation with U.S. Fish and Wildlife Service prior to initiating any activities in certain areas of the Oroville Wildlife Area that would significantly affect the quality or extent of giant garter snake wetlands habitat; (2) minimization of activities that disturb, destroy, fragment or otherwise modify habitat in upland habitat within 200 feet of giant garter snake wetland habitat; (3) avoidance of rodent control activities of any kind in designated giant garter snake wetlands habitat, except in certain circumstances; (4) restricted removal of non-native or noxious weeds; (5) a continuing public education program will be developed and implemented with a goal of preventing giant garter snakes from being intentionally harmed or killed;

[17] PDEA § 5.6.2.2; *see also*, Study Plan T2.
[18] PDEA, Appendix E, at p. E1-32.

and (6) restriction of dog-training field exercises in the Thermalito Afterbay area.[19]

u. Protection of Valley Elderberry Longhorn Beetle (Article A120)

The valley elderberry longhorn beetle was federally listed as a threatened species in August 1980. The beetle is primarily restricted to riparian habitat and adjacent uplands. The valley elderberry longhorn beetle is dependent upon its host plant the elderberry (*Sambucus* sp.). Elderberry bushes are one of the most common shrub species in high terrace habitats within the portion of the Oroville Wildlife Area bordering the Feather River.[20] Accordingly, DWR will implement conservation measures required by the U.S. Fish and Wildlife Service Final Biological Opinion to protect the valley elderberry longhorn beetle.

It is anticipated DWR's responsibilities in the Biological Opinion will include such measures as: (1) maintenance of the same amount and quality of beetle habitat that now exists within the Project boundary, based upon DWR's 2004 habitat mapping; and (2) best management practices and other protective measures, as necessary, will be routinely implemented to ensure that elderberry plants are not inadvertently damaged during project maintenance activities, recreational development, or implementation of environmental PM&E measures.

[19] PDEA, Appendix E, § 5.5.2.
[20] PDEA at pp. 5.7-12, 5.7-13.

v. Protection of Red-Legged Frog (Article A121)

The California red-legged frog was federally listed as threatened in 1996, and a final Recovery Plan for the California red-legged frog was issued in 2003. The Oroville Facilities Project boundary is not included within any of the eight recovery units identified in the Recovery Plan,[21] and no red-legged frogs were observed during the habitat surveys conducted in 2002 or during other relicensing field data collection activities.[22] However, there is potentially suitable habitat for the red-legged frog within the Project boundary.[23] Accordingly, DWR agrees to implement conservation measures required by the U.S. Fish and Wildlife Service Final Biological Opinion to protect the red-legged frog within the Project boundary. It is anticipated that these measures will be consistent with the measures discussed above for the giant garter snake because habitat characteristics important to giant garter snake and red-legged frog are similar, and there is substantial overlap in the potentially suitable habitat for these two species within the Project boundary.[24] The PDEA did not include any measures specifically for red-legged frog conservation because the frog is not known to occur within the project boundary.

w. Construction and Recharge of Brood Ponds (Article A122)

Waterfowl and giant garter snake survival can be adversely affected by Afterbay water level fluctuations, which increase the distance from emergent wetland cover and aquatic habitat. The giant garter snake is protected under the

[21] PDEA, Appendix E, § 6.1.3.2 at p. E1-69.
[22] *Id.* § 6.1.3.4 at p. E1-71.
[23] *Id.* § 6.1.3.3, at p. E1-70.
[24] *Id.* § 7.2 at p. E1-142.

State and federal Endangered Species Acts. As distance to cover increases, so do predation rates. Existing brood ponds are designed to maintain a more stable water surface elevation than the Afterbay and provide waterfowl and giant garter snake cover adjacent to aquatic habitats which serve to reduce giant garter snake and waterfowl brood losses. As water levels decrease within brood ponds (from evaporation, seepage, and evapotranspiration), the distance from aquatic habitat to brood cover increases within the pond. Evaluation of historic water level fluctuations in brood ponds indicates that brood ponds require recharge once every three weeks to remain functional as waterfowl brood habitat. For the giant garter snake, evaluation of water level decreases in brood ponds indicates that brood ponds require recharge at least monthly to remain functional giant garter snake habitat.

DWR will develop, in conjunction with Fish and Game and in consultation with the EC and U.S. Fish and Wildlife Service, a plan to construct four new waterfowl brood ponds within the Thermalito Afterbay. The plan will be submitted to the Commission for approval. As part of that plan, DWR will maintain adequate water surface elevations within existing and future waterfowl brood ponds by sufficiently filling the brood ponds no later than April 15 of each year, and by ensuring that once filled, the water surface level of the ponds does not fluctuate more than one foot throughout the waterfowl brooding season of April 15 through July 31. DWR will recharge waterfowl brood ponds every three weeks during this time period. DWR will recharge the brood ponds at least monthly for the giant garter snake between April 1 and October 31 each year.

These measures were included in the January 2005 license application, and have not changed since that time. However, discrepancies exist between the PDEA and the draft Biological Assessment reviewed by U.S. Fish and Wildlife Service as to the period of brood pond recharge, and the implementation schedule to construct the brood ponds. The PDEA proposes to recharge brood ponds (existing and future ponds) at three week intervals during the primary waterfowl brooding period (April 15 through June 31). The Biological Assessment, on the other hand, recommends recharge of current and future brood ponds on a monthly basis during the giant garter snake active period (April through October). The PDEA calls for construction of four additional brood ponds at five-year intervals following acceptance of the License, while the Biological Assessment conservation measure proposes to construct four additional brood ponds within the first four years following License acceptance. The PDEA brood pond construction is targeted at providing additional waterfowl brooding habitat, while the Biological Assessment conservation measures are targeted on avoiding or minimizing Afterbay water level effects on giant garter snakes. Assuming the Final Biological Opinion adopts the measures in the draft Biological Assessment, DWR will follow those measures rather than the PDEA measures. DWR will not be required to expend more than $920,000 to build the four brood ponds.

The construction of additional brood ponds was included in the Proposed Action in the PDEA,[25] and was found to be beneficial.[26]

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[25] PDEA at p. 3-36.
[26] *Id.* at pp. 5.6-36, 5.6-37.

x. Provision of Upland Food for Nesting Waterfowl (Article A123)

Areas of disturbed annual grassland around the Thermalito Afterbay lack high-carbohydrate wildlife forage. The availability of high-carbohydrate forage can significantly increase the density and productivity of recreationally important wildlife species. Accordingly, a total of 60 to 70 acres of upland/cover/forage crops will be prepared and planted on an annual basis to support upland game birds and wintering waterfowl within the Thermalito Afterbay portion of the OWA on a rotational basis.

The past Fish and Game habitat improvement practice of planting and fertilizing wildlife forage crops (safflower, barley, or milo) in upland areas around the Thermalito Afterbay for upland game species, migratory and resident waterfowl will be continued. Upland forage crops will be planted and fertilized annually each spring after planting areas have dried enough to allow equipment access. DWR further proposes to continue the Fish and Game practice of dry land farming rather than irrigated farming to produce forage crops. DWR's costs will not exceed $9,000 annually.

These measures are included in the January license application and have not changed as a result of continued negotiations. The PDEA found these measures to be beneficial.[27]

y. Provision of Nest Cover for Upland Waterfowl (Article A124)

DWR will actively manage 240 acres of waterfowl nest cover, including preparing and planting 60 acres and fertilizing an additional 180 acres annually

[27] *Id.* at p. 5.6-36.

within the Thermalito Afterbay portion of the Oroville Wildlife Area on a rotational basis. Mallards are the dominant nesting waterfowl species at the Thermalito Afterbay. Nesting mallards select tall, dense, green, herbaceous, humid nest cover within ¾ mile of brooding habitat for nesting. The wetland margin of the Afterbay provides all of these nest characteristics. Disturbed annual grassland upland habitats support much lower nesting densities and exhibit higher predation rates than the wetland margin. Afterbay water level fluctuations can flood mallard nests constructed within the Afterbay margin, forcing mallard hens to renest in upland locations lacking adequate nest cover and subject to higher predation rates. Establishment of waterfowl nest cover in upland areas can provide high quality mallard nesting habitat not subject to Afterbay water level fluctuations, resulting in higher waterfowl production. With annual fertilization, a waterfowl nest cover plot can be maintained as nest cover for at least four years without replanting. DWR will use the Fish and Game practice of dryland farming for the nest cover. DWR will not be required to expend more than $15,000 annually to carry out this article.

This measure has not changed since its inclusion in the January license application. The PDEA concluded this measure is beneficial.[28]

z. Installation of Wildlife Nesting Boxes (Article A125)

Tree cavity nesting wildlife species including wood ducks require trees or snags of adequate diameter containing cavities for nesting. If cavities are lacking, cavity nesters are absent as breeding species. Nesting boxes can

[28] *Id.* at p. 5.6-36.

provide suitable cavity nesting habitat in areas currently lacking natural cavities or increase the density of cavity nesters in areas where natural cavities are few. Installation of nesting boxes is a well documented successful habitat improvement technique to improve wood duck production. Wood ducks are valued by both hunters and birdwatchers. Accordingly, DWR will install and maintain 100 wildlife nesting boxes in suitable habitat within the project area in cooperation with Fish and Game and Parks and Recreation. This habitat improvement program was historically implemented through an agreement between Fish and Game and volunteers from the California Waterfowl Association. The PDEA considered this measure and found it to be beneficial, with no adverse effects on vegetation or special status plant species.[29]

aa. Invasive Plant Management (Article A126)

Fluctuating water levels in the Thermalito Complex and in Lake Oroville and managed flows in the low flow section of the Feather River promote the proliferation of noxious plant species along the wetland margins, river banks, and in the adjacent floodplain. Maintenance and other land disturbing activities promote the proliferation of invasive plant species in uplands and wetland/riparian areas. Eradication and/or control will help reduce the number of seeds and/or plant parts (with potential to invade other sensitive resources and habitats as well as downstream agricultural lands) that are flushed into downstream irrigation canals, the Feather River channel, and ultimately the San Francisco Bay Delta.

[29] *Id.* at p. 5.6-40.

DWR will develop a plan to manage and reduce target noxious non-native and native plant species populations within the Project boundary, which will be submitted to the Commission for approval (A126). The management plan will be developed in conjunction with U.S. Forest Service, Bureau of Land Management, Fish and Game, and Parks and Recreation. The EC, and specifically the Fish and Wildlife Service, will have the opportunity to provide input and comment on the plan. The management plan will cite specific species, areas, acreages, and treatment methods as well as a monitoring program that will include surveys to inventory and map target weed species and an assessment of the effectiveness of the control methods. Areas will be identified as to the need for follow-up restoration at the site. The management plan will be reevaluated as necessary. DWR will not be required to spend more than $450,000 to develop and implement the Plan during the first 5 years after license issuance, or more than $35,000 annually thereafter.

The purpose of this plan is to reduce noxious non-native and some native plant species populations within the Project boundary. It would target populations in the Thermalito Complex, Oroville Wildlife Area, selected lands around Lake Oroville, and along the Low Flow Channel. The goal would be to reduce these target plant populations and when necessary replace them with appropriate native plant species. The species of greatest concern include purple loosestrife (*Lythrum salicaria*), giant reed (*Arundo donax*), tree of heaven (*Ailanthus altissima*), scarlet wisteria (*Sesbania punicea*), parrot feather (*Myriophyllum aquaticum*) and Himalayan blackberry (*Rubus discolor*). It also

includes the control of both the native and non-native subspecies of aquatic water primrose (*Ludwigia peploides*) within the OWA ponds.

The management plan was considered in the PDEA under the proposed action, and is expected to be "highly beneficial to native plan communities and special-status species and their habitat."[30]

2. Recreation Management Plan (Article A127)

Pursuant to the settlement agreement and the Settlement Agreement Recreation Management Plan (SA-RMP), dated March 2006, DWR has agreed to construct, rehabilitate, operate and maintain numerous recreation facilities throughout the Project. Most of these recreational improvements are detailed in the Recreation Management Plan filed with the License Application in January 2005 (January RMP), and analyzed in the PDEA. As a result of the settlement negotiations among the Settling Parties that continued after the License Application was filed, the plan now includes additional measures. These measures are included in the SA-RMP, which is also being submitted for Commission approval and is intended to supersede the RMP filed with the Commission with the license application in January 2005.

In general, DWR has agreed to update, improve, and expand recreation facilities for camping, day use areas, boating, and trails. For example, DWR will improve and expand existing campgrounds, including the addition of three new floating campsites, which are unique to this Project. For day use areas, DWR will improve and provide additional parking, and improve shoreline access for swimming and related recreation. In addition, fish cleaning stations will be

[30] PDEA at p. 5.6-40.

installed in some locations. For boating, DWR will construct additional boat ramps, boat launches and new floating docks that are adjustable to changing water levels for better access. For trails, DWR will improve non-motorized trail opportunities throughout the Project, improve vehicular access, and add new features such as non-potable stock watering troughs and other specialized amenities.

DWR will incorporate Americans with Disabilities Act compliance measures into the improvement and expansion of recreation facilities and update and add signage to provide additional information regarding reactions sites. To stay abreast of the changing needs and demands for recreation at the Project, DWR will implement a comprehensive monitoring program to identify future needed improvements to recreation facilities, with specific triggers for installation. DWR will conduct feasibility studies to consider other improvements such as new swimming opportunities and additional possible locations for a concessionaire-run store/snack bar. In addition, DWR will consult and coordinate with Pacific Gas and Electric Company and the Stewardship Council on possible land acquisition at Lime Saddle and other project-adjacent locations and coordinate improved distribution of whitewater boating flow information, based on Pacific Gas and Electric Company data.

The Settling Parties propose to include these obligations of DWR to construct, improve, operate and maintain recreation facilities at the Project through an article in the New Project License, which incorporates by reference the SA-RMP, as approved by the Commission. The Proposed License Article

requires that within one year following the acceptance of the license, DWR will file an implementation plan for the SA-RMP that would set forth a schedule for the implementation of these measures. The SA-RMP includes DWR's obligation to establish a Recreation Advisory Committee to advise DWR on implementation of the SA-RMP components, review recreational use data for Project facilities, and periodically recommend modifications to the SA-RMP at prescribed milestones throughout the term of the New Project License. As part of its efforts to continually monitor and evaluate recreational resources at the Project, the license article also requires DWR to prepare the FERC Form 80 report in consultation with the Recreation Advisory Committee, and submit Form 80 to FERC every 6 years after license acceptance.

During the pre-filing collaborative effort, the Recreation and Socioeconomics Work Group developed 17 study plans to guide 17 separate but interrelated recreation studies (2 additional studies investigated socioeconomic issues and related recreation spending).[31] The results of these studies indicated that some recreational facilities at the Project need upgrades and improvements due to their age, increased capacity to meet demand, and improved and increased access. In addition, a few of the older facilities were not designed to accommodate individuals with disabilities.

The SA-RMP represents a single "umbrella" protection, mitigation, and enhancement measures for recreation resources in the Project area. The January 2005 RMP filed with the License Application included what DWR believes is necessary to meet the needs identified by the studies. However, after

[31] PDEA § 5.10, at p. 5.10-1.

several months of settlement negotiations, the Settling Parties identified the benefits of additional recreation improvements. In the interest of reaching consensus, DWR has agreed to many of these additional measures and is providing a record to support them. Accordingly, DWR proposes the January RMP be replaced by the SA-RMP. While DWR believes the January 2005 RMP would meet DWR's obligations to improve recreational resources associated with the Oroville Facilities, the SA-RMP offers additional protection, mitigation and enhancement measures which DWR agrees to implement in the interest of improving the recreation resources and meeting the additional measures identified, and achieving consensus among the stakeholders in the collaborative process.

The SA-RMP includes a number of proposed actions and improvements to help meet existing and future recreation needs that are associated with the Oroville Facilities. Future recreation needs, such as development of additional campground capacity at several locations, have also been defined. These needs will be validated in the future through periodic monitoring of public recreation facility use, capacity, and condition. The following is a description of the SA-RMP, which also identifies those measures that have been added since the January RMP and the justification for those additional measures.

a. Recreation PM&E Measures

i. License Coordination Unit

DWR will establish a License Coordination Unit to manage the projects and programs of the New Project License.[32] The License Coordination Unit will be responsible for (1) managing the recreational, environmental, and other terms and conditions of the license; (2) ensuring compliance with the regulatory framework defined by the Commission and other regulatory agencies; and (3) providing a local point of contact for the community. The License Coordination Unit staff will coordinate and manage construction and maintenance activities; coordinate and manage the functions and recommendations from the Recreation Advisory Committee and EC; and manage studies and monitoring programs.

DWR will also hold and facilitate community workshops twice per year in the City of Oroville/Oroville area to share information with the community on the progress of projects associated with license requirements, reservoir conditions, or operations and other issues related to implementation of the SA-RMP, and to receive community input. DWR will maintain a Web-based Bulletin Board, updated monthly or as needed with project status reports, milestones, community events, license events, community workshop notes and Recreation Advisory Committee summaries.[33]

ii. Recreation Advisory Committee

DWR will establish a Recreation Advisory Committee to advise DWR on implementation of the SA-RMP components, review recreational use data for the

[32] SA-RMP § 4.3.
[33] SA-RMP §§ 4.3.1, 4.3.2.

Project facilities, and recommend modifications to the SA-RMP over time throughout the term of the New Project License. Recreational usage monitoring data and reports, along with a record of all recommendations made by the Recreation Advisory Committee, will be provided to the Commission every two years. Membership on the Recreation Advisory Committee will include local governments, local interest groups, relevant State agencies and DWR, among others. The License Coordination Unit will arrange, administer, and chair the Recreation Advisory Committee meetings.[34]

iii. Campgrounds

The SA-RMP contains many provisions to modify, improve, and/or expand the campgrounds at the Project. Such measures apply to (1) Bidwell Canyon Campground, (2) Loafer Creek Campground, (3) Loafer Creek Group Campground, (4) Loafer Creek Equestrian Campground; (5) Lime Saddle Campground; (6) Lime Saddle Group Campground; (7) Spillway RV "En Route" Campground; (8) North Thermalito Forebay RV "En Route" Campground; and (9) OWA Thermalito Afterbay Outlet Camping Area.

As detailed in the SA-RMP, DWR will make campground improvements including an increase in the number of camping spaces (both RV and tent in some cases) at various campgrounds, providing ADA-related improvements where appropriate, and establishing a monitors and triggers system to determine when camping facilities have reached capacity and additional facilities are needed. The improvements to campgrounds in the SA-RMP were analyzed in the PDEA and were found to be generally beneficial by providing increased

[34] *Id.* § 4.4.

capacity and access. The PDEA noted only short-term adverse effects from these measures related to construction of the improvements.[35]

With respect to floating campsites, DWR initially planned to relocate two or three of the existing floating campsites closer to the Lime Saddle area of Lake Oroville.[36] After continued negotiations, DWR will now install three new floating campsites in addition to the ten already in place, which will be deployed so that they are more easily accessible from the Lime Saddle Marina and Boat Ramp.[37] The PDEA notes that the three additional campsites will be beneficial because they will increase camping capacity.[38]

The SA-RMP discusses the Boat-In-Campgrounds and provides that DWR will periodically update the interpretive materials at: (1) Bloomer Cove Boat-in-Campground; (2) Bloomer Knoll Boat-in-Campground; (3) Bloomer Point Boat-in-Campground; (4) Bloomer Group Boat-in-Campground; (5) Craig Saddle Boat-in-Campground; (6) Foreman Creek Boat-in-Campground; and (7) Goat Ranch Boat-in-Campground.

iv. Boating

The SA-RMP includes many provisions to improve boating access and opportunities at the Project. Boat ramps included in the Project facilities are (1) Bidwell Canyon Boat Ramp/Day Use Area; (2) Loafer Creek Boat Ramp/Day Use Area; (3) Lime Saddle Boat Ramp/Day Use Area; (4) Spillway Boat Ramp/Day Use Area; (5) North Thermalito Forebay Boat Ramp/Day Use Area; (6) South

[35] PDEA, Table 5.10-2, at 5.10-48-49.
[36] P-2100 Application for New License, Vol. VI, Appendix I, January RMP at I-57.
[37] SA-RMP § 6.2.8, at 6-10.
[38] PDEA, Table 5.10-2, at p. 5.10-48.

Thermalito Boat Ramp/Day Use Area; (7) Monument Hill (Thermalito Afterbay) Boat Ramp/Day Use Area; (8) Enterprise Boat Ramp; (9) Wilbur Road (Thermalito Afterbay) Boat Ramp; (10) Dark Canyon Car-top Boat Ramp; (11) Foreman Creek Car-top Boat Ramp; (12) Larkin Road (Thermalito Afterbay) Car-top Boat Ramp; (13) Nelson Bar Car-top Boat Ramp; (14) Stringtown Car-top Boat Ramp; (15) Vinton Gulch Car-top Boat Ramp; (16) OWA Thermalito Afterbay Outlet Boat Ramp; and (17) OWA unimproved Boat Ramp.

DWR has agreed to numerous improvements to the various boat ramps located in the Project boundary, such as the extension of boat ramp lanes at Bidwell Canyon and the installation of new floating docks at Loafer Creek and Lime Saddle. Other measures include conducting a feasibility study for swimming opportunities, adding new picnic tables and shade ramadas at the South Thermalito Forebay and Larkin Road Boat Ramps/Day Use Areas, as well as improving existing shoreline at these locations for swimming and related recreation. These are just some examples of the numerous improvements to be made to these locations. The specific improvements to boat ramps are described in detail in the SA-RMP.

Some of the improvements to boat ramps in the SA-RMP were agreed to after DWR submitted its January RMP and related PDEA. These additional improvements for Bidwell Canyon include DWR's support for possible safe and effective shuttle service between parking facilities and the marina to be provided by a concessionaire. In addition, DWR will also explore provision of additional dry boat storage to be provided by a concessionaire. DWR will work with the

concessionaire to provide a fee-based whitewater shuttle service. DWR will also resurface the existing gravel parking lot (at 700 feet msl elevation and Ramp #2) with concrete (or asphalt, if permitted), and will add a third lane to existing Bidwell Ramp #1 between elevations 781 feet and 745 feet, and possibly a fourth lane to this ramp if feasible.[39]

For the Loafer Creek Boat Ramp/Day Use Area, the additional measures DWR agreed to after filing the January RMP include widening, grading and gravelling an existing dirt service road to an approximate elevation of 750 feet, which will allow longer duration car-top boat access. DWR also agreed to evaluate the feasibility of including a concessionaire-operated campground/DUA activity center and store/snack-bar at Loafer Creek. DWR will construct a new single-vault toilet building to replace a removed, vandalized portable toilet.[40] Both the opening of the gravel service road and consideration of the campground activity center were found to be beneficial in the PDEA.[41]

The SA-RMP also includes additional improvement measures for the Lime Saddle Boat Ramp/Day Use Area that DWR has agreed to as a result of continued negotiations. These additional measures include: (1) replacing the 13 older existing picnic tables and seven existing shade structures with new, ADA compliant facilities including pole stoves/grills; (2) constructing an additional 60 paved vehicle/trailer parking spaces adjacent to the existing boat ramp/marina parking area; (3) evaluating the feasibility of providing a concessionaire-operated campground/day use area activity center and store/snack bar; (4) seeking fee

[39] SA-RMP § 6.4.1, at p. 6-21.
[40] *Id.* § 6.4.2.
[41] *Id.*

title land acquisition of the adjacent surplus Pacific Gas and Electric Company property to use for marina and boat ramp expansion purposes; (5) implement a safe and effective concessionaire-run, fee-based whitewater-boater shuttle service from a take-out/end-of-trip point on the North Fork arm of Lake Oroville to the Lime Saddle Marina; and (6) constructing a proposed new trail to connect the Lime Saddle Campground with the Lime Saddle Boat Ramp/Day Use Area/Marina via Parish Cove. The PDEA found these improvement measures to be beneficial with only short-term adverse effects related to construction.[42]

v. Day Use Areas

There are many Day Use Areas included in the Project, at which DWR will provide periodic updates of interpretative materials through the SA-RMP's Interpretation and Education Program. This program will define how hydroelectric energy production, environmental, and cultural information distribution will be coordinated and conducted by DWR at Project facilities through informational interpretation and education. This program is further described in the SA-RMP.[43] Other improvements at the Day Use Areas include additional parking, picnic tables, a gravel car-top boat ramp and pedestrian trail access to the water at Diversion Pool Day Use Area, improved trail and vehicular access to the Diversion Pool from the Lakeland Boulevard trail access, and an ADA accessible fishing platform or pier at the north Diversion Pool Day Use Area. DWR will also designate a Day Use Area near the river on the south side of the outlet channel at the Oroville Wildlife Area Thermalito Afterbay Outlet. A

[42] PDEA, Table 5.10-2.
[43] SA-RMP § 7.6.

complete list of the detailed improvements to Day Use Areas can be found in the SA-RMP.[44] All of these improvements were considered in the PDEA and found to be beneficial because they will add parking capacity and they will improve day use experience. The only adverse effects noted are short-term, related to the construction of the improvements.[45]

At the Oroville Dam Overlook Day Use Areas, DWR proposes to install shade ramadas, picnic tables, and interpretative panels. DWR will also add approximately 100 parking spaces on the terrace to the south of the dam, and will modify some existing parking spaces and the restroom to improve ADA-compliant access. In the January RMP, DWR proposed these improvements only if a need was demonstrated. The firm commitment to make these improvements is a result of continued negotiations. The PDEA notes that such improvements will be beneficial because they will add parking capacity. The only adverse effects noted are short-term related to construction.

vi. Trails and Trailheads

DWR has directed special and substantial effort, including a Trails Focus Group established specifically for settlement purposes, towards resolution of several long-standing concerns about use designation at several Project trails. Though it should be noted that Relicensing Studies, which included nearly 1,000 user surveys, reported relatively low use and a high level of satisfaction with the experience afforded by existing Project trails, DWR further sought to address stakeholder suggestions for improvement of this popular resource. The draft

[44] *Id.* § 6.3 and Table 6.3-1.
[45] *See, e.g.*, PDEA, Table 5.10-2, at p. 5.10-50.

Non-Motorized Trails Plan proposed in the SA-RMP was developed collaboratively with input from hundreds of trail users. In fact, a broad coalition of over 500 local equestrians, hikers, bicyclists, and other trail users have supported the draft Non-Motorized Trails Plan in writing to FERC.

It should be noted that DWR attempted to amend the existing Project trail use designations during the ALP phase and in fact did change certain trails to multi-use during the 2002 through 2004 time period. Much of the positive feedback related to conversion of the trails to multi-use came from a broad spectrum of trail users and was captured in the Relicensing studies. Moreover, the safety of multiple use trails was clearly demonstrated during the Study and survey phase as no accidents or injuries were reported for the Project trail system.

The proposed Trails Plan seeks to provide the best possible user experiences for the broadest array of users, while still preserving the special experiences available to specific user groups, and overall giving paramount consideration to ensuring reasonable and acceptable user safety. Applying these considerations, with input from users and trail managers and experts, the proposed Trails Plan affords equestrians and hikers exclusive use of a loop trail associated with the Loafer Creek Equestrian Campground. This campground has stalls associated with each campsite, showers for both campers and their horses, and a round pen for exercising horses. Relative to existing trail use, many other sections of trail are proposed for conversion to multiple-use, primarily for the purpose of affording more loop-trail opportunities to equestrians, hikers,

and off-road bicyclists. A trails safety event will be held annually and will be open to all trail users to promote safe and enjoyable trail recreation.

The proposed Trails Plan is the result of recreation studies, nearly 1,000 trail surveys conducted during Relicensing (which reveal 91% of respondents are "very" or "extremely" satisfied with the trails), dozens of Recreation and Socioeconomic Work Group meetings discussing various trail issues, and ensuing Settlement Negotiation meetings (including Trails Focus Group Settlement Negotiations held specifically to address trail issues). DWR and the broad consensus of trail-using stakeholders supporting the proposed Non-Motorized Trails Plan collectively believe this is the most realistic, safe, and beneficial compromise possible, and was reached by an overwhelming majority of local trail users at the Project.

At many of the trails and trailheads at the Project, DWR will provide periodic updates of the interpretative materials. Some trails and trailheads, however, will have additional improvements. These individual and site-specific resource actions are described in more detail in the SA-RMP.[46] These improvements were analyzed in the PDEA and found to be beneficial, with only short-term adverse effects as a result of construction of the improvements.[47]

Some additional measures are included in the SA-RMP as a result of subsequent negotiations. For example, the SA-RMP provides that DWR will install a non-potable stock-watering trough and hand-washing sink at the existing Lakeland Boulevard Trailhead Access gravel parking area. DWR will also

[46] SA-RMP § 6.5.
[47] PDEA, Table 5.10-2.

evaluate the feasibility of a new mountain bicycle trail originating from this location. If feasible, based on reconciliation of topography and property ownership issues, a two- to four-mile trail will be constructed and will connect with the Dan Beebe Trail at an eastward point. Upon completion of this bicycle trail, the "parallel" portion of the Dan Beebe Trail will be closed to bicycle use. Until then, the trails in this vicinity will be designated multiple use, with the exception of the Sycamore Hill segment of the Dan Beebe Trail[48] which is designated as equestrian and hiker only. The PDEA concluded that this would be beneficial because more trails will become accessible to a broader spectrum and greater number of users.[49]

For the Saddle Dam Trailhead Access, the SA-RMP includes several additional measures as a result of subsequent negotiations. For example, DWR will install a non-potable stock water trough, hand-washing sink, hitching posts for horses, and native shade trees at the Saddle Dam Trailhead/Day Use Area. The Dan Beebe Trail will be opened to bicycle use, and the Bidwell Canyon Trail will be opened to equestrian use, to allow all users the opportunity to complete a loop-ride without the need for backtracking. Additional security will be provided at the trailhead location; frequency of patrols will be based upon observed use and reported incidence of theft and vandalism.[50] The PDEA did not specifically address the improvements at this site, but the benefits to users are similar to

[48] SA-RMP § 6.5.4.
[49] PDEA, Table 5.10-2.
[50] SA-RMP § 6.5.5.

those described at the Lakeland Trailhead improvement which were analyzed in the PDEA and found to be beneficial.[51]

b. Implementation Programs

To accomplish the recreation goals and objectives for the Project and to incorporate actions arising from the Settlement Agreement process, several RMP activity areas or programs are included in the SA-RMP. These programs include: (1) *Recreation Facility Development Program* that defines DWR's construction-related responsibilities to address existing and future project-related recreation needs, identifies proposed recreation development projects, provides estimated costs and scheduling for these recreation measures, identifies approximate locations and provides conceptual layouts of the development measures, and discusses general facility development standards and design criteria to be used; (2) *Recreation Operations and Maintenance (O&M) Program* that defines DWR's existing and future recreation facility O&M responsibilities; (3) *Recreation Monitoring Program* that defines how DWR will conduct recreation resource monitoring and how the monitoring information will be used in decision-making. As a result of focused settlement negotiations, the SA-RMP contains a detailed, 12 page plan for identifying use patterns or trends that objectively demonstrate a need for new facilities; (4) *Resource Integration and Coordination Program* that identifies how DWR will integrate recreation resource needs with other resource management needs (such as cultural, wildlife, and aquatic resources) over time; (5) *Plan Review or Revision Program* that defines how the SA-RMP will be updated or revised over the term of the new license; and (6) *Interpretation and*

[51] PDEA, Table 5.10-2 at p. 5.10-49.

Education (I&E) Program that defines how hydroelectric energy production, environmental, and cultural information will be coordinated and disseminated by DWR at Project facilities through informational interpretation and education.

DWR's obligations for recreational facilities set forth in the SA-RMP will be an extensive program to improve, update, and expand the existing facilities at the Project to serve existing demand, as well as to construct new facilities to meet anticipated future demand, and to improve and increase access to such facilities. The Settling Parties believe that such improvements and construction plans for the Project satisfy the recreational requirements under Section 10(a) of the FPA,[52] as well as the Commission's policy on recreation at licensed projects.[53] Furthermore, the PDEA thoroughly analyzed these recreational measures and concluded that the measures would increase the quality of the recreational experience throughout the Project area, increase camping capacity, add new trails, add day use facilities (including at several sites where currently there are no such facilities), increase wildlife viewing opportunities, provide increased visitor education and safety, and improve recreation management and coordination.[54]

3. Cultural Provisions

a. Historic Properties Management Plan (Article A128)

DWR has prepared a draft Historic Properties Management Plan (HPMP), as required by FERC in compliance with Section 106 of the National Historic Preservation Act and implementing regulations 36 C.F.R. § 800, as amended.

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[52] 16 U.S.C. § 803(a).
[53] 18 C.F.R. § 2.7.
[54] PDEA § 5.10.2.2, at p. 5.10-63.

The plan has been developed with input from the U.S. Forest Service, Bureau of Land Management, Parks and Recreation, and the local Maidu Tribes, and will be submitted to FERC and the State Office of Historic Preservation for approval once the document is finalized. The purpose of the HPMP is to address the management of a diverse array of cultural and historic resources that are included in the Project's Area of Potential Effects (APE) over the life of the new hydropower license. The planned preparation of the HPMP is also included in the PDEA submitted as part of the license application. Following further review, DWR anticipates filing a proposed HPMP with the Commission to be approved as part of the order issuing new license. Proposed License Article A128 reflects the expectation that an HPMP will be adopted as part of the license.

The HPMP outlines DWR's program to identify historic properties within the APE and includes a number of measures to avoid and/or mitigate adverse impacts to those properties. The current draft HPMP lists a number of tools to address impacts to historic properties within the APE,[55] among which are: 1) resource monitoring, 2) impact avoidance, 3) protection/stabilization and 4) data recovery. It also includes a number of supporting or improvement measures such as establishment of a curation facility for prehistoric materials collected during inventory, evaluation and mitigation activities;[56] a public education and information program to increase public awareness of and appreciation for cultural resources and to help reduce intentional and unintentional damage to these

[55] HPMP at Part 4.1.
[56] *Id.* at Part 4.1.4.1.

resources (Part 4.5);[57] and the identification of areas to set aside, improve or develop traditionally used plants for the local Native American community. Furthermore, the HPMP addresses procedures for inadvertent discoveries[58] and for emergency situations.[59]

The HPMP provides for the establishment of a Cultural Resources Consultation Group (CRCG).[60] The CRCG will allow for continued coordination with agencies responsible for cultural resource management and local federally recognized and unrecognized Maidu Tribes. The CRCG will review proposed future actions and examine the efficacy of recent project activities. The DWR Cultural Resources Coordinator will schedule and hold annual review meetings. Meetings will be held annually for the first ten years and then on an as-needed basis.

The management of historic properties associated with the Oroville Facilities over the term of the new hydropower license requires flexibility and adaptation.[61] With this in mind, the HPMP will periodically be reviewed to ensure that the plan adequately addresses newly identified cultural resources and resource values; updated project management issues; substantive changes to the use of the project area; and new laws, regulations and policies that may be enacted or adopted. Formal reviews of the HPMP will take place in consultation with the CRCG participants. The reviews will be conducted every 5 years for the first 10 years following adoption of the final HPMP, and every 10 years thereafter.

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[57] *Id.* at Part 4.5.
[58] *Id.* at Part 4.7.
[59] *Id.* at Part 4.8.
[60] *Id.* at Part 5.2.
[61] *Id.* at Part 7.

b. Improve and Redirect Recreation Usage to Specific Areas at Foreman Creek (Article A129)

Due to the presence of cultural resources at Foreman Creek, DWR will develop a plan to protect cultural resources, while expanding recreation at that this location. The plan will include measures to restrict usage of the existing car-top boat ramp, and to expand or enhance recreational facility improvements to encourage recreational use in non-culturally sensitive areas at Foreman Creek. The plan will be developed in consultation with the four federally recognized Native American tribes located in Butte County, the Kon Kow Valley Band of Maidu, and the Recreation Advisory Committee.

4. Flood Control and Early Warning System

a. Flood Control (Article A130)

The Settling Parties agree that DWR will operate the Project in accordance with the rules and regulations prescribed by the Secretary of the Army pursuant to Section 204 of the Flood Control Act of 1958. This is consistent with DWR's current license for the Project.

While FERC typically has jurisdiction over flood control operations as part of its licensing authority under Part I of the Federal Power Act, 16 U.S.C. § 791 *et seq.*, Congress specifically granted exclusive jurisdiction over flood control operations at the Oroville Facilities to the Secretary of the Army. In Section 204 of the Flood Control Act of 1958 (Pub. L. 85-500, 72 Stat. 297), an appropriation was made to contribute to the construction cost of the Oroville Dam and Reservoir. This appropriation was made contingent upon an agreement between

the State of California and the Department of the Army for operation of the dam for flood control benefits.

Subsequent to the Flood Control Act of 1958, the Federal Power Commission issued an Order Amending License for Oroville on January 22, 1964. In that Order, Article 50 was added to the license, and provides that "operation of the project in the interest of flood control as provided in Article 32 of the license shall be in accordance with the rules and regulations to be prescribed by the Secretary of the Army pursuant to Section 204 of the Flood Control Act of 1958."[62]

The Secretary of the Army promulgated regulations as required by the Flood Control Act.[63] These regulations prescribe the responsibilities and general procedures for flood control applicable to federal authorized flood control and/or navigation storage projects, and to non-federal projects that require the Secretary of the Army to prescribe regulations as a condition of the license, permit or legislation during the planning, design and construction phases, and throughout the life of the project.[64]

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[62] Article 32 states that "[t]he Licensee shall collaborate with the Department of the Army in formulating a program of operation for the project in the interest of flood control."

[63] *See* 33 C.F.R. § 208.11.

[64] In addition, 33 C.F.R. § 209.220(b) provides as follows: Use of storage allocated for flood control or navigation at reservoirs constructed wholly or in part with Federal funds. Regulations prescribed by the Secretary of the Army in accordance with section 7 of the Flood Control Act of December 22, 1944 (58 Stat. 890; 33 U.S.C. § 709) are for the purpose of coordinating the operation of the flood control features of reservoirs constructed wholly or in part with Federal funds and other flood control improvements to obtain the maximum protection from floods which can reasonably be obtained with the proper operation of all flood control improvements. Proposed regulations are determined by the District Engineer in cooperation with the persons responsible for the maintenance and operation of the reservoir involved after a detailed study of the flood problems and the characteristics of the reservoir project. The proposed regulations are forwarded by the District Engineer through the Division Engineer to the Chief of Engineers for consideration of the Secretary of the Army. When approved by the Secretary of the Army, these regulations are published in part 208 of this chapter.

Both Congress and the Commission clearly stated that flood control operations at Oroville are governed by the rules and regulations prescribed by the Secretary of the Army, and the Secretary of the Army assumed its authority over flood control operations in its regulations. Accordingly, the Parties have agreed to a license article on flood control that continues to acknowledge the Secretary of the Army's rules and regulations for flood control at the Project.

b. Early Warning System (Article A131)

In order to improve communication and coordination with affected agencies, DWR has agreed to develop and file for Commission approval an early warning plan for flood events. The plan will describe how DWR will communicate and coordinate Project operations with the Army Corps of Engineers, the California Office of Emergency Services, and the Butte County Office of Emergency Services before and during flood emergency events. DWR already communicates and coordinates with these entities regarding flood events, but will make that communication and coordination more formal through the early warning plan.

5. Screening of Material Storage Area (Article A132)

In the collaborative process, stakeholders noted the material storage area located northwest of the emergency spillway was visible from Oroville Dam Boulevard. DWR will make the area more aesthetically pleasing by planting appropriate vegetation to screen the storage/staging area from view of Oroville Dam Boulevard.

6. Project Boundary Modifications (Article A133)

Several Proposed License Articles require the development of resource specific plans that may have implementation actions taking place outside the current Project Boundary. Because those plans are yet to be developed, it is unclear at this time whether and how much the Project boundary should be expanded. The Settling Parties agree that the Project boundary should be modified only when necessary, and only to the extent necessary to comply with the Proposed License Articles. Accordingly, the Settling Parties have agreed to a Proposed License Article which requires DWR to file a revised Exhibit G within two years following license issuance for Commission approval. This article also requires DWR to include a narrative explaining any changes to the Project boundary, the amount of federal land occupied by the Project, and how the proposed Project boundary includes those lands necessary for Project purposes. For any subsequent changes to the Project boundary necessary to carry out the measures required by DWR, DWR will file additional revised Exhibit G and narrative statements as needed. Prior to making any filing under this article, DWR will consult with the Recreation Advisory Committee or EC, as appropriate.

7. Expenditures (Article A134)

Many of the Proposed License Articles contain limitations on the amounts DWR can be required to spend in implementing the various resource measures. These cost limitations were carefully negotiated by the Settling Parties and constitute an essential element of the Settlement Agreement. However,

consistent with the Commission's stated policy on cost caps in licenses,[65] the parties agreed to include a proposed license article acknowledging that the Commission reserves the right to require DWR to implement approved plans and other requirements in the license regardless of any cost caps in the license articles.

8. Procedural Requirements (Article A135)

The Settlement Agreement establishes procedures for resolving disputes that may arise among the Settling Parties in carrying out their obligations under the Settlement Agreement. Any of the Settling Parties claiming a dispute is required to give notice of the dispute to the other Settling Parties.[66] If the dispute is within the scope of the Recreation Advisory Committee or the EC, or is properly referred to such committee, then the dispute is considered in that committee pursuant to that committee's decision rules. If the dispute is referred to both committees, then the committees are to hold a joint meeting to consider the dispute, and any decision by the joint committee is to be made by consensus.[67] If the dispute is not referred to a committee, then the disputing parties are required to hold two informal meetings to attempt to resolve the dispute. If the dispute remains after the informal meetings or committee consideration, the Settling Parties have the option to use a neutral mediator to attempt to resolve the dispute.[68]

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[65] *See Virginia Electric Power Co.*, 110 FERC ¶ 61,241, at P 10 (2005).
[66] Settlement Agreement § 5.2.1.
[67] *Id.* § 5.2.2.
[68] *Id.* § 5.2.3.

The parties involved in disputes are required to provide notice of the resolution of the dispute, if any, to the other Settling Parties.[69] If the disputing parties fail to resolve the dispute after exhaustion of the dispute resolution process, the disputing parties may seek administrative or judicial relief as appropriate.[70]

The Settlement Agreement also sets forth the circumstances under which Settling Parties other than DWR can seek reopeners to the new license, and under which DWR may seek amendments to the license.[71] In general, a party proposing a reopener or amendment that would be inconsistent with the Settlement Agreement must give notice to the other Settling Parties, be subject to dispute resolution, and show that the reopener or amendment is based on material new information and meets other requirements set forth in the Settlement Agreement.

Proposed License Article 135 includes a provision that DWR will comply with the procedural requirements of the Settlement Agreement for dispute resolution, reopeners, and amendments of the license. The proposed license article further provides that the Commission will not consider motions to reopen or amend the license filed by either DWR or non-licensee signatories to the Settlement Agreement who have failed to comply with these procedural requirements. The Commission first agreed to include such provisions in a license in *Erie Boulevard Hydropower, L.P.*, 100 FERC ¶ 61,321, at P 39 (2002). In that decision, the Commission recognized that "prior consultation and dispute

[69] *Id.* § 5.2.4.
[70] *Id.* § 5.3.
[71] *Id.* §§ 4.15.1-.2.

resolution can significantly reduce the transaction costs of litigating before the Commission over license disputes." *Id.* The Settling Parties recognize that the Commission cannot directly enforce compliance over any party other than a licensee. Accordingly, the proposed license article is crafted to specifically require the Licensee to comply, but only provides that the Commission will not consider certain filings if others fail to comply.

9. 50-year license term

As a result of the extensive investment DWR is making for the New Project License through the comprehensive package of PM&E's, Section 4.6.2 of the administrative provisions of the Settlement Agreement provides that the Settling Parties agree that the Commission should grant a 50-year new license term for the Project. This is consistent with the Commission's policy on license terms as articulated in *Mead Corp.* There, the Commission stated that it will grant:

> 30-year terms for the licenses for projects with little or no proposed redevelopment, new construction, new capacity or environmental mitigative and enhancement measures; 40-year terms for projects with a moderate amount of proposed redevelopment, new construction, new capacity or mitigative and enhancement measures; and 50-year terms for projects with proposed extensive redevelopment, new construction, new capacity, or mitigative and enhancement measures.[72]

The settling parties believe that the extensive protection, mitigation and enhancement measures set forth in the Settlement Agreement warrant a 50-year term for the New Project License issued to DWR for the continued operation of the Project. Indeed, DWR estimates, assuming that the New Project License becomes effective in 2007, that the total capital costs of the measures set forth in

[72] 72 FERC ¶ 61,077 (1995).

the Settlement Agreement and incorporated into the new 50-year license would exceed $130 million (in 2005 dollars). Capital costs for measures included in the Settlement Agreement but not incorporated into the new 50-year license[73] are estimated at $11 million. Also in 2005 dollars, DWR will expend an estimated $13 million annually in implementing measures under the Settlement Agreement. In total, DWR's post-licensing costs for implementing protection, mitigation and enhancement measures at the Project over a 50-year period exceed $1 billion (in 2005 dollars).[74] Such measures certainly meet the "extensive redevelopment, new construction, new capacity, or mitigative and enhancement measures" test under *Mead Corp.*

It is also important to note that a 50-year license term is a negotiated and agreed-upon term of the Settling Parties in the Settlement Agreement (Section 4.6.2). DWR's actions in the relicensing and the measures included in the Settlement Agreement are premised upon the issuance of a 50-year license. During the pre-filing collaboration, DWR was very inclusive and consulted extensively with State and Federal agencies, local governments, non-governmental organizations and the public, and made tremendous efforts to include the area tribal authorities in order to undergo a comprehensive review of the Project and its effects.

In an attempt to promote long-term settlement of the relicensing of the Project, and to avoid any protracted, costly litigation, DWR consistently supported wide participation in the collaborative, which ensured representation

[73] *See infra* Part II.A.10, Settled Issues Not to be Included in the New Project License.
[74] DWR will be submitting revised cost tables to update the cost tables in its Application.

from many stakeholder interests. As a result of these efforts, the collaborative successfully identified and reviewed scores of potential improvement and mitigation measures, many of which ultimately became the subject of this Settlement Agreement. All measures proposed in the Settlement Agreement were negotiated, developed and analyzed based upon a 50-year new license term, which led to unanimity among the Settling Parties that the Commission should issue a new license with a 50-year term.

10. Settled Issues Not to be Included in the New Project License

In addition to the measures in the Settlement Agreement that are incorporated into the Proposed License Articles in Appendix A to be included in the New Project License, DWR has agreed, under the Settlement Agreement, to undertake several measures that are beyond the scope of the above-captioned relicensing process. While these measures were essential to the overall Settlement Agreement and will ultimately benefit recreation, socioeconomics and environmental resources in the Project region, the Settling Parties believe they should not be incorporated into any new license issued by the Commission for the continued operation of the Project. These additional measures are set forth in Appendix B to the Settlement Agreement, and are summarized briefly below.

a. Project Supplemental Benefits Fund (Section B100)

In order to allow the benefits of the Project to be extended into the local communities in the vicinity of the Project, and to create additional benefits for the Settling Parties, DWR will establish and maintain a Project Supplemental Benefits Fund. The Fund will provide up to $61,270,000 of un-escalated funds to

be used for local projects as determined by the steering committee. The steering committee will be comprised of both voting and advisory members, and will include members of the Oroville City Council, Board of Directors of the Feather River Recreation and Parks District, DWR, the State Water Contractors, the Oroville Area Chamber of Commerce, and American Rivers. DWR, State Water Contractors, Oroville Area Chamber of Commerce and American Rivers will be eligible for non-voting advisory membership. Actions taken under the Fund will not interfere with the FERC license.

b. Feather River Whitewater Boating Opportunity Feasibility Study (Section B101)

DWR has agreed to initiate and fund a whitewater boating opportunity and recreation feasibility study to assist the Fund Steering Committee of the Supplemental Benefits Fund in determining whether to fund the construction and operation of such a project, or cost share on such a project somewhere in the region, pursuant to their funding criteria. DWR will contribute up to $250,000 toward the study, and further agrees to initiate the study scoping process within 90 days of the execution of the Settlement Agreement.

c. Development of a Fuel Load Management Plan (Section B102)

Because of the wildfire potential associated with buildup of vegetation in the Sierra Nevada foothills, the issue of fuel load management was studied. During the scoping process public concerns were raised related to fuel loading and the potential for wildfire.

Based on recent history, it can be assumed that there will continue to be wildfires in and near the FERC project boundary. Recreation users and others are attracted to the OWA, Project recreation facilities, and other areas within the Project boundary, thus contributing to the risk of wildfire. Several entities are addressing fuel loading and related wildfire risks within the Project boundary and in the vicinity of the Project. As a result, DWR has agreed to develop a Fuel Load Management Plan to manage fuels within the Project area and to improve future related interagency planning, management and coordination. The Fuel Load Management Plan is not included in Appendix A because it will be developed in coordination with several other agencies as part of a larger effort to address fuel load in the region. The PDEA analyzed a Fuel Load Management Plan under Alternative 2, and concluded that "it is expected that the completion and implementation of a plan would result in improved fuel load management on project lands and lead to an associated reduction in the risk of wildfires in the future."[75]

d. Additional Gaging (Section B103)

As part of the Settlement Agreement, DWR agrees to evaluate and potentially implement additional stage and/or precipitation gaging locations at the Project in order to improve flood forecasting and monitoring.

e. Feather River Fish Hatchery Funding (Section B104)

In this provision, DWR agrees to provide all necessary funding to Fish and Game to implement the Feather River Fish Hatchery Program set forth in Proposed License Article A107.

[75] PDEA at 5.8-32.

f. Gravel Supplementation (Section B105)

DWR agrees, as an early implementation action, to seek to obtain all necessary permits for the supplementation of at least 8,300 cubic yards over the December 31, 2006 baseline of spawning gravels suitable for spring-run Chinook salmon or steelhead, which will be distributed over up to 15 locations in the Low Flow Channel or High Flow Channel of the Feather River. DWR agrees to implement this action once the necessary permits are received.

g. Oroville Wildlife Management Plan (Section B106)

As part of the Settlement Agreement, Fish and Game agrees to use its best efforts to obtain adequate funding to develop the Oroville Wildlife Area Management Plan set forth in Proposed License Article A115.

h. Revision of Speed Limit Regulation for Thermalito Afterbay (Section B107)

At this time, there is a speed limit regulation of 5 mph on all of Thermalito Afterbay. However, this regulation is not enforced. Fish and Game agrees to make a recommendation to the California Fish and Game Commission to rescind the speed limit for that portion of the Thermalito Afterbay south of highway 162.

i. Flow/Temperature to Support Anadromous Fish (Section B108)

As an early implementation action, DWR agrees to begin the necessary studies for the refurbishment or replacement of the river valve once the Settlement Agreement is executed and filed with the Commission. In addition, by October 31, 2006, DWR will submit to specific agencies a Reconnaissance Study of Facilities Modification to address temperature habitat needs for anadromous

fisheries in the Low Flow Channel and the High Flow Channel. The Reconnaissance Study will be submitted to FERC after license issuance pursuant to Article A108.3. This Appendix B provision also establishes certain cost caps related to the Facilities Modification as a contractual matter among the Settling Parties.

j. Riparian/Floodplain Screening Level Analysis (Section B109)

This is an early implementation item under which DWR will develop the Phase 1 screening level analysis for potential riparian/floodplain improvement projects required in Proposed License Article A106(b)(1). Beginning to develop the analysis upon execution of the Settlement Agreement is intended to ensure that DWR will be able to meet its license obligation to file the analysis with FERC within 1 year of license issuance.

k. Analysis of a Non-Motorized Water Trail Shoreline Access (Section B110)

DWR has agreed to complete an analysis of non-motorized water trail shoreline access opportunities along the Feather River within and in the vicinity of the Project boundary. DWR will fund and/or construct or improve a total of two to three river access sites within five years after the license becomes final. DWR will work cooperatively with California Department of Boating and Waterways and other appropriate state or local agencies to explore expanding the boating trail opportunities downstream in the Feather River to the Sacramento River confluence or beyond where practical. The commitments in this section were

included in Appendix B of the Settlement Agreement because the location of the access improvements has not yet been determined.

l. Oroville Wildlife Area Funding (Section B111)

DWR agrees to complete an interagency agreement with Fish and Game to provide annual funding necessary to manage the Oroville Wildlife Area.

m. Habitat Expansion Agreement

Construction of the Oroville Facilities and Pacific Gas and Electric Company's construction of other hydroelectric facilities on the upper Feather River tributaries blocked passage and reduced available habitat for ESA listed anadromous salmonids Central Valley spring-run Chinook salmon *(Oncorhynchus tshawytscha*) ("spring-run") and Central Valley steelhead *(O. mykiss)* ("steelhead"). The reduction in spring-run habitat resulted in spatial overlap with fall-run Chinook salmon and has led to increased redd superimposition, competition for limited habitat, and genetic introgression. FERC relicensing of hydroelectric projects in the Feather River basin has focused attention on the desirability of expanding spawning, rearing and adult holding habitat available for Central Valley spring-run and steelhead. As discussed above, the Settlement Agreement in Appendix F includes a provision to establish a habitat enhancement program with an approach for identifying, evaluating, selecting and implementing the most promising action(s) to expand such spawning, rearing and adult holding habitat in the Sacramento River Basin as a contribution to the conservation and recovery of these species. The specific goal of the Habitat Expansion Agreement is to expand habitat sufficiently to

accommodate an estimated net increase of 2,000 to 3,000 spring-run or steelhead for spawning ("Habitat Expansion Threshold"). The population size target of 2,000 to 3,000 spawning individuals was selected because it is approximately the number of spring-run and steelhead that historically migrated to the upper Feather River.

Within 2 years of signing the Settlement Agreement, the Licensees will complete identification, evaluation and selection of habitat expansion action(s) using the Evaluation Criteria and Selection Criteria listed in the agreement. Potential habitat actions will occur in the Sacramento River basin and include, but are not limited to dam removal, dam re-operation, flow and water temperature improvements, fish passage, and physical habitat improvements. Habitat expansion actions would be selected in consultation with NMFS, U.S. Fish and Wildlife Service, State Water Resources Control Board, U.S. Forest Service, and Fish and Game.

This provision was not included in the proposed license articles because the study will look beyond the Project boundary and the license for suitable habitat expansion projects. The Services will reserve their Section 18 authority, and will exercise that authority within the license at a later time only if it becomes necessary under the terms of the Habitat Expansion Agreement (see Settlement Agreement Section 4.4, Article A109). To the extent that any future habitat expansion activities affect a Commission licensed facility, it is understood that Commission approval will be necessary.

B. Procedural Obligations of the Settling Parties

1. Complete Recommendations, Terms and Conditions and Prescriptions

The Settling Parties have agreed the Settlement Agreement resolves the issues that may arise in the issuance of all permits and approvals associated with the issuance of the New Project License and that PM&E measures in the Settlement Agreement fulfill the various rights, authorities and responsibilities of the Settling Parties under Section 4(e), 10(a), 10(j) and 18 of the Federal Power Act, as well as other statutory and regulatory authorities (Section 2.1). Regarding the Federal and State agencies that are Settling Parties, the Settlement Agreement constitutes their recommendations, conditions and/or prescriptions, as provided by the Commission's regulations.

The Settlement Agreement also recognizes, however, that several Settling Parties have outstanding regulatory obligations in the relicensing of the Project pursuant to certain statutory obligations and authorities. To accommodate the completion of these obligations, the Settlement Agreement reserves the right for these Settling Parties to satisfy their obligations in a manner that is consistent with the Settlement Agreement. In this regard, the public agencies reserved their authority to fulfill their constitutional, statutory, and regulatory responsibilities,[76] although they agreed not to include final mandatory terms, conditions, prescriptions or other recommendations that are inconsistent with the Settlement Agreement unless based upon material new information.[77]

[76] Settlement Agreement § 3.1.2.
[77] *Id.* § 4.

2. Support of Settlement Agreement During Term of New Project License

All Settling Parties have agreed to support the Settlement Agreement throughout the 50-year term of the New Project License.[78] The Settlement Agreement further provides that Settling Parties must ensure that all of their filing or other submittals are not inconsistent with the Settlement Agreement and do not propose any license provisions that are in any way contrary to or inconsistent with the Settlement Agreement.

IV. Conclusion

Because the integrity of the Settlement Agreement depends upon the Commission's incorporation of the Project License Articles and because DWR believes that the measures in the Settlement Agreement more than adequately satisfy all statutory and regulatory requirements pertaining to the relicensing of the Project, the Commission should approve the Settlement Agreement and incorporate the Proposed License Articles into a 50-year New Project License without modification.

Respectfully submitted,

Michael A. Swiger

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Counsel for California Department of
Water Resources

DATED: March 24, 2006

[78] *Id.* §§ 4.5.1, 4.7.

APPENDIX A
FINAL DETAILED ENVIRONMENTAL UNDERSTANDINGS

1. Gravel Supplementation and Improvement Program (Article A102)

This program is to be consistent with the goals and objectives, and included within the Lower Feather River Habitat Improvement Plan.

(a) Upon signing the settlement agreement, the Licensee shall initiate the development and implementation of an initial Gravel Supplementation Program to address the immediate lower Feather River spawning riffle needs[1]. As part of the program, the Licensee will supplement (place, inject, spread, rake, or by other means) up to 15 locations in the Low Flow Channel or High Flow Channel of the Feather River with at least 8,300 cubic yards over the December 31, 2006 baseline of spawning gravels suitable for spring-run Chinook salmon or steelhead. The initial program shall be completed within five years of license issuance and will include, among other items, an initial baseline physical assessment[2] of the spawning riffle areas, a gravel budget of at least 8,300 cubic yards, targeted areas (riffle and glide complexes) for gravel supplementation, and a strategy for implementing the program.

(b) Within two years following license issuance, the Licensee shall also develop and file for Commission approval, a Gravel Supplementation and Improvement Program Plan to address gravel management for the lower Feather River throughout the term of the license. The Licensee shall consult with the Ecological Committee (EC) and the Agencies, including specifically the U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish and Game, and the State Water Resources Control Board (consultees) in developing this plan. The Licensee shall include with the filing of the Plan copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why any such comment was not adopted. Upon Commission approval, and after obtaining all necessary permits, the Licensee shall implement the plan, including any changes required by the Commission.

(c) The Gravel Supplementation and Improvement Program Plan shall provide for: (1) a physical assessment of the spawning riffles from River Mile 54.2 up to River Mile 67.2 of the Feather River; (2) a gravel budget for the Low Flow Channel and, if necessary portions of the High Flow Channel within the Project Boundary; (3) a strategy to augment existing gravel recruitment beyond the 8,300 cubic yards referenced in (a) above in the Low Flow Channel and High Flow Channel with gravel injections, placements, or other methods developed through site-specific investigations; (4) plans to monitor and evaluate the effectiveness of gravel augmentation, particularly the biological response of fish species to the gravel

[1] This would include the studies conducted as part of the P-2100 FERC relicensing activities.
[2] This assessment would be conducted, as needed, to supplement the studies previously conducted as part the P-2100 FERC relicensing.

supplementation and enhancement activities; (5) an annual summary account of the activities conducted; (6) and coordination with other components of the FERC license and the Lower Feather River Habitat Improvement Program to enhance natural reproduction of steelhead and Chinook salmon.

(d) The Gravel Supplementation and Improvement Program Plan shall include any portion of the action items in (a) above not yet completed, and include the following measures, criteria and timelines:

(1) All work within the Ordinary High Water of the Lower Feather River mark shall take place during the months of June and July, or at other times as allowed by permit conditions to produce minimal impact to the target species (steelhead and Chinook salmon) and other river attributes (i.e., water quality).

(2) Gravel placement or riffle rehabilitation at the treated riffles shall, where feasible, cover the extent of naturally observed spawning areas, be within an area extending between river banks, and extend at least 50 feet upstream and 50 feet downstream of the riffle, and be a depth of at least one foot.

(3) The Licensee shall monitor and replenish or rehabilitate gravel at individual sites every five years, as needed, for the term of the license. At five year intervals after the initial supplementation period, the Licensee shall monitor and maintain a minimum of 10 riffle complexes in the Low Flow Channel so that approximately 80% of the spawning gravels randomly sampled in riffle complexes shall be in the median size range preferred by Chinook salmon or steelhead. All work will be done in consultation with the EC and the consultees listed in (b) above. High flow events shall be defined in the Gravel Supplementation and Improvement Program Plan.

(4) The Licensee, in consultation with the consultees listed in (b) above, shall also determine the need for additional gravel supplementation activities to be conducted in the High Flow Channel of the Feather River (within the Project Boundary). If and when the need arises, but no sooner than ten years after license issuance, the Licensee will prepare a gravel budget for supplementation activities in the High Flow Channel of the lower Feather River (within the Project Boundary). This budget would include the staging of spawning gravel stockpiles, of up to 2,000 cubic yards, of a size distribution agreed upon by the Licensee and the consultees listed in (b) above, in the immediately vicinity below or near the pool below the Thermalito Afterbay Outlet.

(5) The Licensee shall prepare an annual summary report describing the activities completed pursuant to the Program and submit the report to the consultees listed in (b) above. Throughout the term of the license, the Licensee shall complete these annual reports at least once every five years in the Lower Feather River Habitat Improvement Plan Report as described in Proposed License Article A101.

(7) Components of the Gravel Supplementation and Improvement Program Plan and Lower Feather River Habitat Improvement Plan will include monitoring plans to monitor and evaluate the use of the improved areas by anadromous salmonids to determine the effectiveness of the gravel supplementation or riffle rehabilitation to ensure that spawning gravels are not a primary limiting factor for the natural reproduction of steelhead or Chinook salmon. If the monitoring activities determine that suitable spawning areas are a primary limiting factor for their natural reproduction, additional gravel supplementation activities will be conducted by the Licensee, in coordination with the consultees listed in (b) above.

(e) Monitoring/Measures of Success. The Licensee shall collect data appropriate for evaluating the effectiveness of the Gravel Supplementation and Improvement Program and achievement of its objectives. The Licensee, in consultation with the consultees listed in (b) above, shall reevaluate the Gravel Supplementation and Improvement Program Plan every five years after initial implementation. Every five years the Licensee shall submit for the Commission's information a Lower Feather River Habitat Improvement Plan report which includes any Plan updates. If any changes are recommended beyond the objectives, activities, or schedules identified in Proposed License Article A102 or the Gravel Supplementation and Improvement Program Plan, the Licensee shall submit final recommendations to the Commission for approval. The Licensee shall include with the filing copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why any such comment was not adopted. Upon Commission approval, the Licensee shall implement the Gravel Supplementation and Improvement Program Plan, including any changes required by the Commission.

2. Channel Improvement Program (Article A103)

The Channel Improvement Program is an integral part of the Lower Feather River Habitat Improvement Plan.

Program Objective. Improve and expand existing juvenile rearing and spawning habitat for steelhead trout and, incidentally, spring-run Chinook salmon by creating additional side channel habitats.

Program Description. DWR studies have found that juvenile steelhead, and to a lesser extent spawning adult steelhead, strongly select shallow riffle/glide and near-shore habitats with abundant riparian and in-stream cover. Habitats meeting these criteria are most often found in side-channels. The channel improvement program will modify and improve existing channel morphologies to create additional high quality rearing and spawning habitat, with emphasis on the biological needs of steelhead.

(a) Within one year, the Licensee shall develop and file for Commission approval, a Moe and Hatchery Ditch Plan to improve two existing side channels at the upstream end of the Low Flow Channel, Moe's Ditch and Hatchery Ditch, by modifying these channels to provide suitable discharge, velocity, depth, substrate, cover and riparian vegetation to support salmonid spawning and rearing. The Plan shall be developed in consultation with the Ecological Committee, including specifically the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and the California Department of Fish and Game (consultees). The Licensee shall include with the filing of the Moe and Hatchery Ditch Plan copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why any such comment was not adopted. The Plan shall include a schedule to complete the improvements to Moe's Ditch and Hatchery Ditch within three years of license issuance. Upon Commission approval, and after obtaining all necessary permits, the Licensee shall implement the Plan, including any changes required by the Commission.

(b) Within four years of license issuance, the Licensee shall develop and file for Commission approval a Channel Construction Plan to identify and construct, within ten years of license issuance, five additional side channel riffle/glide complexes of not less than a cumulative total of 2,460 feet in length of new habitat. These side channels shall be located and designed to maximize quantity/quality of suitable salmonid habitat attributes (depth, velocity, substrate, cover, vegetation) while minimizing potential for warming, stranding and predation problems. As possible, Nature-Like Fishway[3] concepts shall be incorporated to provide for a stable yet geomorphically dynamic channel. To the extent possible, side channel development should coincide with gravel supplementation activities occurring in the vicinity. The Channel Construction Plan shall be developed in consultation with the consultees

[3] Nature-Like Fishways, as described in "An Illustrative Handbook on Nature-Like Fishways – Summarized Version" by Wildman, Parasiewicz, Katopodis and Dumont, are fishways whose designs are based on simulating natural stream characteristics, use natural materials, and provide suitable passage conditions over a range of flows for a wide variety of fish species and other aquatic organisms.

listed in (a) above. The Licensee shall include with the filing of the Channel Construction Plan copies of the comments, including recommendations, made in the course of such conslultation, and an explanation as to why any such comment was not adopted. Upon Commission approval, and after obtaining all necessary permits, the Licensee shall implement the Plan, including any changes required by the Commission.

(c) Maintenance activities associated with channel improvements will be developed by the Licensee in consultation with the consultees listed in (a) above. Maintenance activities shall occur at least every five years, or as often as necessary to maintain channel functions. High flow events shall be defined in the Channel Construction Plan.

Monitoring/Measures of Success. The Licensee shall annually collect data appropriate for evaluating the effectiveness of the Channel Improvement Program and the achievement of the Channel Improvement Program objectives. The Licensee shall prepare an annual summary report describing monitoring and implementation of plan activities completed pursuant to the Program and submit the report to the consultees listed in (a) above for review. Throughout the term of the License, the Licensee shall compile these annual reports every five years in the Lower Feather River Habitat Improvement Plan Report (as described in Proposed License Article A101).

The Licensee, in consultation with the consultees listed in (a) above, shall reevaluate the Channel Construction Plan every five years after initial implementation. The Licensee shall provide all Plan updates to the Commission for information. If any changes are recommended beyond the objectives, activities, or schedules identified in Proposed License Article A103 or the Plan, the Licensee shall submit final recommendations to the Commission for approval. The Licensee shall include with the filing copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why any comment was not adopted. Upon Commission approval, the Licensee shall implement the Plan, including any changes required by the Commission. The Licensee shall include any Commission approved revisions to the Plan in any updates to the Lower Feather River Habitat Improvement Plan.

3. Structural Habitat Supplementation and Improvement Program (Article A104)

The current operation of Oroville Dam has contributed to the reduction in structural habitat, including large woody debris (LWD) in the lower Feather River, particularly in the Low Flow Channel. The Structural Habitat Supplementation and Improvement Program (SHSI) is an integral part of the Lower Feather River Habitat Improvement Plan.

Program Objectives. The program objectives for the SHSI program is to support the restoration and improvement of salmonid rearing habitat in the lower Feather River below Oroville Dam by providing instream cover and increasing the area of shallow-edge habitats within riffles, glides, and pools, where appropriate within the lower Feather River. The primary target for these actions would be steelhead and spring-run Chinook salmon juveniles.

Program Description. The Licensee shall provide additional salmonid rearing habitat in the Lower Feather River by creating additional cover, edge, and channel complexity through the addition of structural habitat, including LWD, boulders, and other objects. Within two years of license issuance, the Licensee shall develop and file for Commission approval, a Structural Habitat Supplementation and Improvement Program Plan based on information from relevant Study Plans. The Plan shall be developed in consultation with the Ecological Committee, including specifically U.S. Fish and Wildlife Service, National Marine Fisheries Service, and California Department of Fish and Game (consultees). The Licensee shall include with the filing of the Plan copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why any such comment was not adopted. Within two years following Commission approval of the Plan, and after obtaining all necessary permits, the Licensee shall implement the Plan, including any changes required by the Commission.[4] If additional baseline monitoring is needed to fully develop the plan it will be performed, as possible, before plan implementation.

Components of the plan shall include:

(a) Proposed locations for structural placements, including LWD, boulders, or other material. LWD for this project is defined as multi-branched trees at least 12 inches diameter at chest height, and a minimum of 10 feet in length (with a preference of approximately 20 feet or longer) with approximately 50% of the structures containing intact rootwads. In consultation with the consultees listed under Program Description, LWD or other native materials shall be located in the river to maximize the instream benefit at the lowest minimum flow specified in Proposed License Article A108 with the rootwad (if attached) oriented upstream.

(b) A strategy shall be developed and implemented to map existing LWD, riparian habitat, and sources of riparian and LWD recruitment.

[4] The Administrative Provisions of the Settlement Agreement provide that the Licensee may request an extension of time for regulatory or permitting issues beyond its control.

(c) In the Low Flow Channel and High Flow Channel (between RM 54.2 and RM 67.2 of the Feather River), a minimum of 2 pieces of LWD or other acceptable structure per riffle, in addition to that which currently exists (for a total between 50 and 500 pieces), shall be placed in order to achieve maximum benefits to rearing salmonids. Additional LWD, boulders, etc. may be placed in glide, riffle, and pool habitat where appropriate.

(d) A safety analysis will be completed prior to program implementation to insure that issues relating to human safety are adequately addressed. Part of this plan may be modified as a result of the analysis.

(e) Monitoring/Measures of Success: The plan will establish specific monitoring criteria and will provide for the collection of data appropriate for evaluating the effectiveness of the program and its objectives. Monitoring of the structural placements after major high flow events, or at least once very five years in the absence of a high flow event, shall be conducted to collect data appropriate for evaluating the effectiveness of the Program and its objectives. High flow events shall be defined in the plan.

(f) Maintenance/Replacement: The plan will establish the specific maintenance criteria, including the interval for replacement of LWD or other structures. Replacement will occur at a minimum every five years.

(g) Reporting: The Licensee shall annually collect data appropriate for evaluating the effectiveness of the Structural Habitat Supplementation and Improvement Program and the achievement of the Program objectives. The Licensee shall prepare an annual summary report describing monitoring and implementation of plan activities completed pursuant to the Program and submit the report to the consultees listed in the Program Description above for review. Throughout the term of the License, the Licensee shall compile these annual reports every five years in the Lower Feather River Habitat Improvement Plan Report (as described in Proposed License Article A101).

In consultation with the consultees listed under Program Description above, or based upon recommendations of the consultees, the Licensee may recommend to FERC that portions of the above provisions may not be needed if natural floodplain processes within the Project boundary are restored, sufficient to produce LWD recruitment similar to the amounts stipulated above.

The Licensee, in consultation with the consultees listed above, shall reevaluate the Structural Habitat Supplementation and Improvement Program Plan every five years after initial implementation. The Licensee shall provide all Plan updates to the Commission for information. If any changes are recommended beyond the objectives, activities, or schedules identified in Proposed License Article A104 or the Plan, the Licensee shall submit final recommendations to the Commission for approval. The Licensee shall include with the filing copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to

why any comment was not adopted. Upon Commission approval, the Licensee shall implement the Plan, including any changes required by the Commission. The Licensee shall include any Commission approved revisions to the Plan in any updates to the Lower Feather River Habitat Improvement Plan.

4. Fish Weir Program (Article A105)

The Fish Weir Program is an integral part of the Lower Feather River Habitat Improvement Plan.

Program Objectives. The operation of the Oroville Facilities has contributed to impacts to the upstream movement of Central Valley anadromous salmonids. This program will have two separate objectives, with a third potential objective if required. These include:

1. To determine run timing for adult Central Valley spring-run Chinook salmon, Central Valley steelhead and Central Valley fall-run Chinook salmon in the lower Feather River;

2. To spatially segregate spawning areas and minimize frequency of redd superimposition of Central Valley spring- and fall-run Chinook salmon in the Lower Feather River, below the Fish Barrier Dam, based upon the development of an estimate of the size of the spring-run and steelhead populations, and habitat needs for these species, and;

3. To provide adequate collection of Central Valley fall-run Chinook salmon eggs for use at the Feather River Fish Hatchery.

Program Description. This program shall be implemented in two phases and will be coordinated with other additional improvements for anadromous salmonids in the Lower Feather River. In Phase 1, a monitoring weir shall be installed. Information gathered from the monitoring weir will be used to identify placement of a segregation weir in Phase 2. The Phase 2 weir shall be installed to provide spatial segregation between spring and fall-run Chinook salmon based upon the biological needs of the species.

Phase 1

Within one year following license issuance, the Licensee shall develop and file for Commission approval a Phase 1 weir construction and operations plan consistent with the Project biological opinion(s). The plan shall be developed in consultation with the Ecological Committee, including specifically U.S. Fish and Wildlife Service, National Marine Fisheries Service, and California Department of Fish and Game (consultees). The Phase 1 monitoring weir shall be implemented and installed as soon as possible but no later than the end of year three of the new FERC license. The Licensee shall install and operate the monitoring weir in the vicinity upstream of the Thermalito Afterbay Outlet. The Phase 1 weir construction and operations plan shall be designed to document run timing for spring- and fall-run Chinook salmon and steelhead, and include design and safety analysis including boating compatibility, detailed engineering design, and a permitting process schedule. The Operations Plan may consider using the monitoring weir to provide interim spatial and/or temporal segregation of Chinook salmon runs. This plan shall be a part of the Lower Feather River Habitat Improvement Program.

The Licensee shall correlate data to carcass surveys or other existing population counts. The Licensee, in consultation with the consultees listed above, shall use the data collected in Phase 1 to develop recommendations to FERC regarding Phase 2.

No later than the end of the eighth year of the new FERC License, the Licensee shall develop and file for Commission approval a Phase 2 Anadromous Fish Segregation Weir Plan for the purpose of providing spatial separation for the spawning of spring-run and fall-run Chinook salmon. The plan shall include a weir operations protocol, design and safety analysis including boating compatibility, detailed engineering design, and identification of the required permitting processes. The plan shall be developed in consultation with the consultees listed above. The Licensee shall include with the plan, documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the EC and agencies, any dissenting opinions, and specific descriptions of how the EC and agencies' comments are accommodated by the plan. The Licensee shall allow a minimum of 60 days for the EC and agencies to comment and to make recommendations before filing the plan with the Commission. If the Licensee does not adopt a recommendation, the filing shall include the Licensee's reasons for not adopting the recommendation. The Commission reserves the right to require changes to the plan.

Phase 2

Phase 2 shall include a schedule to install and operate a Phase 2 segregation weir in the Lower Feather River upstream of the Thermalito Afterbay Outlet to spatially separate the Central Valley spring- and fall-run Chinook salmon populations. This phase shall consider the installation of an egg-taking station, if appropriate, to collect fall-run Chinook salmon eggs for transport to the Feather River Hatchery. The Phase 2 segregation weir shall be implemented and installed as soon as possible (upon Commission approval) but no later than the end of year twelve of the new FERC license. The timing of the Phase 2 weir installation shall be coordinated with the other programs in the Lower Feather River Habitat Improvement Plan.

Monitoring/Measures of Success. The Licensee shall annually collect data appropriate for evaluating the effectiveness of the Fish Weir(s) and Egg-Taking Station. Annual summary reports describing the monitoring results will be provided to the consultees listed above for review. Throughout the term of the License, the Licensee shall compile these annual reports every 5 years in the Lower Feather River Habitat Improvement Plan Report (as described in Proposed License Article A101).

The Licensee, in consultation with the consultees listed above, shall reevaluate the Program every five years after initial implementation. The Licensee shall provide all Plan updates to the Commission for information. If any changes are recommended beyond the objectives, activities, or schedules identified in Proposed License Article A105 or the Plan, the Licensee shall submit final recommendations to the Commission for approval. The Licensee shall include with the filing copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why any comment was not adopted. Upon Commission approval, the Licensee shall implement the Plan, including any changes required by the Commission.

The Licensee shall include any Commission approved revisions to the Plan in any updates to the Lower Feather River Habitat Improvement Plan.

5. Riparian and Floodplain Improvement Program (Article A106)

Program Objectives

The program objectives for this measure shall be to enhance riparian habitat and connect portions of the floodplain habitat along the Lower Feather River within the Oroville Wildlife Area (OWA) without significantly impacting flows and temperature, flood control or having other significant adverse effects on fisheries, recreation, wildlife or other resources of concern. Improving riparian habitat and connecting the floodplain could increase the potential area of riparian vegetation, improve wetlands, improve habitat for wildlife and aquatic species, enhance the aesthetic value of the river corridor, and should be self-mitigating.

Program Description

This program shall investigate and implement projects to enhance riparian habitat, habitat for associated terrestrial and aquatic species, and connect portions of the river to its floodplain habitats. All projects will be evaluated for opportunities to construct channel habitat to benefit salmonids and other important species. This program could be accomplished through a number of engineering designs, including excavation of OWA dredge tailings to remove or set back non-flood project levees to create vegetative benches along the Lower Feather River channel. This may include low to mid-level terraces to support riparian habitat and low areas connected to the water table to create pond and wetland habitats. These terraces would be designed to be inundated at various flood or high river stages, while attempting to minimize any juvenile fish stranding. Once the river channel connects with its floodplain, natural processes should recruit and enhance riparian and wetland habitat. Vegetative improvements/plantings could also be designed to improve floodplain habitats (e.g., riparian and wetlands) and improve conditions for fish and wildlife species. The Licensee would provide the necessary planning, design, environmental permitting, gravel extraction contracts, riparian planting, and project oversight for this floodplain improvement program.

The Licensee and California Department of Fish and Game will work with gravel operators to seek to reduce costs of gravel removal and the earthwork component of this program. The scope and magnitude of the level of effort (e.g., linear feet of channel setbacks, enhancement acreage, number of plantings, etc.) would be dependent upon the volume of gravels that can be removed and sold within a given time. The abilities and limitations of the gravel extraction will guide the scope, timeframe and magnitude of the program.

Some potential concerns with this program that would need to be coordinated include:

1. Setting back levees would require coordination with the U.S. Army Corps of Engineers (USACE), the Reclamation Board, and possibly, local jurisdictions due to flood management concerns;

2. The potential response of the river channel to extreme peak flow events. [Flood events, such as the 1997 flood, could cause massive erosion on the created or modified geomorphic surfaces.]

Program Components

Within six months of license issuance the License shall develop a plan to implement this program.

The Program shall be implemented in four phases:

- Phase 1 – screening level analysis of potential projects, including how flood/pulse flows could contribute to floodplain values and benefits for fish and wildlife species – identification of Phase 1 recommended alternative
- Phase 2 – implementation of Phase 1 recommended alternative
- Phase 3 – reevaluation of other potential feasible projects – identification of Phase 3 recommended alternative; re-evaluate how flood/pulse flows contribute to floodplain values
- Phase 4 – implementation of Phase 3 recommended alternative

In Phase 1, the Licensee in consultation with the Ecological Committee including specifically U.S. Fish and Wildlife Service, National Marine Fisheries Service, State Water Resources Control Board, and California Department of Fish and Game (consultees), will conduct a screening level analysis on proposed floodplain improvement projects consistent with the OWA management plan. The screening analysis will consider the technical and financial feasibility and the potential that each project has, in part or as a whole, to enhance riparian habitat and connect the river to its floodplain within the Low Flow Channel and High Flow Channel of the Lower Feather River and to provide new fish and wildlife habitat. Higher priority will be given to those project(s) that maximize benefits for all species and habitats including: restoring riparian vegetation and the riparian corridor; restoring habitat for terrestrial species (including special status species); reconnecting the river to its floodplain; and restoring/enhancing riparian and channel habitat for fish and other aquatic species.

The first phase shall also include an assessment of the gravel value and potential extraction processes in order to provide guidance on the scope, timing, and magnitude of the program. This assessment shall contain components that will help frame the mining contract.

In consultation with the consultees listed above, the licensee will move forward to phase 2. It is anticipated that the Phase 1 recommended alternative to be sent to FERC for approval would provide the most riparian and floodplain enhancement value, have the least identified adverse effects and costs, and would be technically feasible.

In Phase 2, after FERC's approval and adoption by California Department of Fish and Game of the OWA Management Plan, the Licensee will implement the Phase 1 recommended alternative after conducting a full scope and cost analysis of the

recommended alternative. Implementation shall include project level environmental documentation, permitting, design, and construction.

In Phase 3, the Licensee shall reevaluate the riparian/floodplain enhancement projects evaluated under Phase 1, as well as the potential for expanding the Phase 2 alternative and other potential projects identified during this time. A recommended alternative from this evaluation shall be selected using criteria similar to those used in Phase 1. Phase 3 will include an assessment of the value of the gravel, similar to that in Phase 1. This could affect the magnitude, scope, and timing of the project.

In Phase 4, the recommended alternative identified under Phase 3 will be implemented.

Examples of projects to be analyzed include but may not be limited to:

1. An engineered floodplain area in the "Fernandez" Area A, the "Robinson" Area D of the OWA, or other locations determined by the Licensee in consultation with the consultees listed above.

2. Creation/establishment/enhancement of 200 acres or more, if feasible, of riparian and wetland habitat. Up to 100 acres of the total would be designated for floodplain connectivity, by channel sculpting (levee setback/removal and streambank excavation, recontouring, and, terracing) in both the High Flow Channel and Low Flow Channel within the OWA. The other 100 acres (approximate) would be designed for riparian and wetland creation/enhancement, including excavation and ground contouring to support riparian vegetation. This could be accomplished by planting additional riparian vegetation, creating seasonal and or/perennial flooded areas, and contouring adjacent upland areas to elevations that would allow riparian vegetation access to the water table. Vegetation improvements would be accomplished through planting of riparian vegetation, as well as natural recruitment.

3. Other riparian/floodplain enhancement projects or modification of the aforementioned projects consistent with the OWA Management Plan.

Monitoring/Measures of Success and Reporting

To evaluate the success of the riparian/floodplain program, a monitoring plan will be developed. Monitoring results will help identify the establishment of riparian and wetland vegetation, characterize the ecological conditions of the terrestrial and aquatic components of the system, and determine the functionality of the river with its floodplain at the project locations. This may include successes and failures and ultimately the effects on wildlife and aquatic species.

The Licensee shall collect data appropriate for evaluating the effectiveness of the Riparian and Floodplain Improvement Program and achievement of its objectives. Throughout the term of the License, the Licensee shall compile reports regarding the results of the Riparian and Floodplain Improvement Program every 5 years in the Lower Feather River Habitat Improvement Plan Report (as described in Proposed License Article A101).

The Licensee, in consultation with the consultees listed above, shall reevaluate the Program every five years after initial implementation. The Licensee shall provide all Plan updates to the Commission for information. If any changes are recommended beyond the objectives, activities, or schedules identified in Proposed License Article A106 or the Plan, the Licensee shall submit final recommendations to the Commission for approval. The Licensee shall include with the filing copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why any comment was not adopted. Upon Commission approval, the Licensee shall implement the Plan, including any changes required by the Commission. The Licensee shall include any Commission approved revisions to the Plan in any updates to the Lower Feather River Habitat Improvement Plan.

Timeframe

The plan shall include the following time frames:

Phase 1: Within one year of license issuance, the Licensee, in consultation with the consultees listed above, shall initiate the screening analysis of the proposed riparian/floodplain improvement projects and include an evaluation of how flood/pulse flows could contribute to floodplain values and fish and wildlife benefits in the Low Flow Channel and High Flow Channel.

Phase 2: Within four years of license issuance, pending completion of the initial screening analysis, the Licensee will begin Phase 2. A full scope and feasibility evaluation shall be conducted in consultation with the consultees listed above, and the Phase 1 recommended alternative and implementation schedule shall be submitted to FERC for approval within six years of license issuance. In addition, the Licensee will begin negotiations with gravel companies to secure an excavation contract for the earthwork associated with the program (excavation, grading, etc.).

The licensee shall complete final design and begin permitting the Phase 1 recommended alternative project. Construction of the project should begin within 8 years of license issuance. If gravel contracts and necessary permits are in place prior to this date, gravel extraction operations could begin. The riparian and floodplain improvement projects will be completed on a phased approach according to a plan schedule agreed upon by California Department of Fish and Game, the gravel operators, and the Licensee. This will allow areas to be actively restored prior to the completion of all gravel removal and floodplain terracing.

Phase 3: Within fifteen years of license issuance, the Licensee shall complete an evaluation of other potentially feasible projects and the identification of a Phase 3 recommended alternative, and shall prepare and submit a plan for FERC approval of this project, including how flood/pulse flows could contribute to floodplain values..

Phase 4: Upon FERC approval of the plan, the Licensee shall design, permit and implement the Phase 3 recommended alternative or extension of the riparian and

floodplain habitat improvement project implemented under Phase 1 and 2. The goal will be to have Phase 4 completed within 25 years of license issuance

Cost

The licensee's total cost of this program will not exceed $ 5 million over the life of the license. Costs associated with these projects are expected to be mainly for analysis, design and engineering, restoration activities, and long-term monitoring. Revenues generated from the sale of the gravels may be realized as goods and services, thereby keeping costs for floodplain excavation/terracing and gravels for fisheries enhancements to a minimum.

6. FEATHER RIVER FISH HATCHERY IMPROVEMENT PROGRAM (Article A107)

6.1 Feather River Fish Hatchery (FRH) Fish Production Program (Article A107.1)

Program Objective. This article is intended to provide for the production of Feather River steelhead (*Oncorhynchus mykiss*), spring-run Chinook salmon (*O. tshawytscha*), and fall-run Chinook salmon and other fish species (e.g. recreational fish stocking at Lake Oroville) at the FRH. Program operations at the FRH are intended to: (1) provide mitigation for commercial and recreational fisheries, (2) potentially enhance natural Feather River production of anadromous fish species; (3) contribute to the recovery of Federally listed Central Valley spring-run Chinook salmon and steelhead, and; (4) allow for adaptive management of the FRH and its coordination with natural reproduction in the lower Feather River.

Program Description. Upon license issuance, the Licensee shall provide the necessary resources to the California Department of Fish and Game to fully implement the FRH production of anadromous salmonids such as steelhead, fall-run Chinook salmon, spring-run Chinook salmon, as well as other salmonids that may be stocked, as part of the license, for the recreational fisheries at the Oroville Facilities. The anadromous fish production goals, such as number of fish, size of fish, and release location (including in-river releases), and future program changes such as the current Central Valley spring-run Chinook salmon (phenotypic) program shall be determined by the Licensee and California Department Fish and Game, in coordination with the Feather River Technical Team (FRTT), the Agencies and the Ecological Committee, as a component of the FRH Management Program Plan (Section 6.3, below).

Measures of Success/Monitoring. The measures of success for the FRH fish production shall be established as a component of the FRH Management Program Plan and will include the Hatchery and Genetic Management Plans (HGMPs) for the spring-run Chinook salmon, fall-run Chinook salmon and steelhead hatchery programs (Section 6.3, below).

6.2 FRFH Water Temperature (Article A107.2)

Program Objective. This article is intended to provide water temperatures in the FRH suitable for all life stages needed to achieve the production goals identified in Section 6.1. This includes water temperatures for holding, spawning, incubating, hatching, and rearing of species necessary for project operations and mitigation.

The Licensee, in consultation with the Agencies, and as identified in Section 7 (Flow/Temperature to Support Anadromous Fish) shall use modification of project operations and possible changes to project facilities in order to meet the temperature objectives.

Program Description.

(a) Upon License issuance, the Licensee shall use the temperatures set forth in Table 6.2A as targets, and shall seek to achieve them through the use of operational measures as set forth below.

Table 6.2A

September	56 °F
October – November	55 °F
December – March	≤55 °F
April – May 15	55 °F
May 16 – May 31	55 °F
June 1 – June 15	60 °F
June 16 – August 15	60 °F
August 16 – August 31	60 °F

(b) The temperatures in Table 6.2A are Maximum Mean Daily Temperatures and shall be calculated by adding the hourly temperatures achieved each day and dividing by 24. Water temperatures shall be measured year-round at the Feather River Fish Hatchery intake/aeration tower. The licensee shall seek to not exceed these Maximum Mean Daily Temperatures through operational changes including but not limited to (i) curtailing pump-back operation and (ii) removing shutters on Hyatt intake and (iii) after river valve refurbishment, DWR will consider the use of the river valve up to a maximum of 1500 cfs; provided however these flows need not exceed the actual flows in the High Flow Channel, but in no event would High Flow Channel flows be less than those specified in Proposed License Article A108.2. During this interim period, the Licensee shall not be in violation of this article if the Maximum Mean Daily Temperatures are not achieved through operational changes.

(c) Upon completion of Facilities Modification(s) as provided in Proposed License Article A108, and no later than the end of year ten following license issuance, Table 6.2A temperatures shall become requirements, and the Licensee shall not exceed the Maximum Mean Daily Temperatures in Table 6.2A for the remainder of the License term, except in Conference Years as referenced in (f), below.

(d) Licensee shall, in no instance, exceed the temperatures set forth in Table 6.2B during the term of the license. Temperatures in Table 6.2B shall be measured hourly year-round at the Feather River Fish Hatchery intake/aeration tower. There shall be no minimum temperature requirement except for the period of April 1 through May 31, during which the temperatures shall not fall below 51 degrees Fahrenheit.

Table 6.2B

September 1-September 30	56 °F
October 1 – November 30	55 °F
December 1 – March 31	55 °F

April 1 – May 15	55 °F
May 16-May 31	59°F
June 1-June 15	60°F
June 16- August 15	64°F
August 16 – August 31	62°F

(e) Upon completion of Facilities Modification(s) as provided in Proposed License Article A108, the Licensee may develop a new table for hatchery temperature requirements that is at least as protective as Table 6.2A. If a new table is developed, it shall be developed in consultation with the Ecological Committee, including specifically U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish and Game, California State Water Resources Control Board, and Central Valley Regional Water Quality Control Board. The new table shall be submitted to the Commission for approval, and upon approval shall become the temperature requirements for the hatchery for the remainder of the license term.

(f) During Conference Years, as defined in Proposed License Article A108.6, the Licensee shall confer with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish and Game, and California State Water Resources Control Board to determine proper temperature and disease management goals.

6.3 Feather River Fish Hatchery Management Program (Article A107.3)

Program Objective. This article is intended to develop and implement a revised comprehensive program for management at the FRH in consultation with the Agencies and the EC. This program will utilize an adaptive management approach in order to:

1. Coordinate the FRH salmonid production with the natural salmonid production in the Feather River, in order to reduce the potentially negative impacts of the hatchery, such as genetic impacts, straying, disease transmission, competition and behavioral impacts, impacts to the Feather River carrying capacity, etc.
2. Integrate the operation of the FRH (including marking and monitoring programs) with other Central Valley hatcheries.
3. Integrate the operation of the FRH management with the operations of flow/temperature management of the Feather River to the extent possible.
4. Integrate the operation of FRH management with the operation of the fish segregation weir and egg taking station.
5. Integrate the operation of the FRH with the commercial and recreational fisheries in the ocean and inland waters.
6. Implement hatchery management measures to remain current with industry standards and best management practices for the propagation of salmonids.

7. Evaluate hatchery management practices that minimize adverse effects on and contribute to the conservation of natural and hatchery-produced populations of Federally listed threatened populations of Central Valley spring-run Chinook salmon and steelhead.

Program Description. Upon license issuance, the Licensee, in coordination with Ecological Committee, including specifically the U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish and Game, California State Water Resources Control Board, and the Central Valley Regional Water Quality Control Board (consultees), shall begin drafting the Plan for the FRH Management Program, as described below. The Licensee shall provide the personnel and any additional facilities (e.g. additional hatchery buildings, plumbing and equipment) as needed to implement the FRH Management Program.

The development of this program will include review and consideration of the recommendations for the FRH put forth in the *Joint Hatchery Review Committee Final Report on Anadromous Salmonid Fish Hatcheries in California.*

The Plan for the FRH Management Program shall be completed within 2 years of License issuance. Implementation of the Program's components shall begin within 3 years of license issuance, subsequent approval by California Department of Fish and Game. The FRH Management Program Plan shall include:

1. Hatchery and Genetics Management Plans (HGMPs) for each anadromous fish species managed by the hatchery, to be developed and implemented to reduce the negative genetic, demographic, and ecological impacts of FRH salmonids on hatchery and naturally-produced salmonids in the Feather River and other watersheds, and identify hatchery practices, operations, and strategic goals for the future.

2. Adaptive management protocols for the FRH production such as egg taking, spawning, incubation, hatching, and rearing, as well as the stocking of these fish (i.e. location, number, and size of fish stocked). The 1999 California Department of Fish and Game et al. document, *Feather River Fish Hatchery Production Goals and Constraints* provides an example of these types of protocols. All protocols will be defined in the HGMPs.

3. A strategy/methodology to continue and/or implement tagging and/or marking of the Feather River Hatchery artificial propagation programs, along with recovery of these tags/marks. This strategy/methodology shall include specific goals for the tagging/marking program, a recovery program, as well as beginning and end dates for each activity. The strategy/methodology will be consistent with state-issued Central Valley hatchery marking protocols.

4. A strategy/methodology to study Feather River Hatchery management effects on salmonids, and the interaction between in-river and hatchery-produced salmonids.

5. A strategy/methodology to study the phenotypic or genotypic traits that may be lost due to management actions or the adverse effects of the facilities if existing literature on these subjects is insufficient.

6. Development of a disease management strategy/methodology to monitor and evaluate the potential for disease outbreaks within the FRH facilities and a plan of action. The disease management component of the FRH Management Program Plan shall include an investigation of the mechanisms to control disease, including water supply disinfection, temperature control devises (e.g. chillers, shade screens, well water, etc.) chemical treatments, fish stress reduction methods (fish density manipulation, flow increases, aeration) and standards for acceptable losses. Consideration of the nature and extent of such improvements will be based on on-going water quality monitoring, along with regular evaluation of level of chronic and acute disease transmission. The Licensee will be responsible for monitoring and reporting on FRH disease and water quality issues. If new information becomes available which indicates that improvements in disease control necessary to promote the recovery of the listed populations is most effectively accomplished through the installation of a water sterilization system, then the Licensee, in consultation with the EC and the Agencies, will invoke this option. The HGMPs shall identify triggers (e.g. altered hydrology) and actions over the course of the license that may affect disease management. The Licensee shall submit the disease management strategy/methodology to the Agencies and the EC for review. The disease management strategy/methodology will be incorporated into the HGMPs.

7. A strategy/methodology to work with other Central Valley hatcheries to improve methods of integrating operations, marking and tag recovery, data management, etc.

8. A strategy/methodology to minimize straying of salmonids produced at the Feather River Fish Hatchery which could include a schedule to phase in volitional emigration of juvenile anadromous fish and to phase out trucking.

9. A strategy/methodology for the release of fish that evaluates full in-river release for the spring-run production, and in-river fall-run releases starting with 25% of the hatchery fall-run production, or other suitable amount to be determined by DFG and the Licensee, in coordination with the EC. To the extent possible, hatchery "in-river" releases and water management practices (including water exports from the Sacramento-San Joaquin Delta) should be coordinated so that emigration survival is maximized.

10. A strategy/methodology to utilize the results of studies, monitoring, new information, etc. in order to make changes to the FRH operations. This may include annual Agency and EC review, and may include other hatchery technical committees as well.

11. This program will be reviewed by the consultees listed above, and the Licensee every 5 years. When possible, these evaluations will be conducted with the renewal of the FRH HGMPs

In addition, the Licensee shall continue to utilize adaptive management practices for spring run fish, such as those started in 2003 (e.g. spring-time fish ladder operation, external spring-run Chinook tagging at FRH, CWT all spring-run Chinook juveniles, etc.). These practices shall continue until such time as the Hatchery Genetics and Management Plans are implemented.

Measures of Success/Monitoring. Since changes based on studies/monitoring are the essence of adaptive management, the measures of success shall be established as the FRH Management Program Plan (Section 6.3) is developed.

Annual hatchery reports shall be prepared, starting in the year following the calendar year that the license is issued. The annual reports shall contain, but not be limited to, the following information for the main hatchery and Thermalito Annex facility:

1. The number of each species and/or run of fish taken, along with the number of adults, grilse, steelhead and half-pounders.

2. An estimate of the number of eggs for each species and/or run.

3. The number, size and species and/or run of all fish reared at the FRH.

4. The number, size, and release location and date of each species stocked and/or transferred.

5. An annual summary of disease management activities, including the diseases detected, the species infected and the number of losses, treatment methods, etc.

6. The egg take and stocking goal used that year.

7. A description of any significant operational changes that may have occurred as a result of the adaptive management process.

The Licensee, in consultation with the consultees listed above, shall reevaluate the Plan every five years after initial implementation. The Licensee shall provide all Plan updates to the Commission for information. If any changes are recommended beyond the objectives, activities, or schedules identified in Proposed License Article A107 or the Plan, the Licensee shall submit final recommendations to the Commission for approval. The Licensee shall include with the filing copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why any comment was not adopted. Upon Commission approval, the Licensee shall implement the Plan, including any changes required by the Commission. The Licensee shall include any Commission approved revisions to the Plan in any updates to the Lower Feather River Habitat Improvement Plan.

The Licensee shall consult with the consultees listed above regarding new information relating to disease control when it becomes available.

6.4 Feather River Fish Hatchery Water Supply Disinfection System (Article A107.4)

Program Objective

This article provides for the installation of a water sterilization system, if determined to be necessary to protect the FRH water supply from fish diseases associated with the passage of anadromous fish to the waters upstream of the hatchery. This disinfection system will substantially reduce the likelihood of IHN, *C. shasta* and other pathogens which cause disease at the FRH.

Program Description.

The Licensee shall install an effective water disinfection system, acceptable to the consultees listed above, for the FRH water supply prior to the passage of anadromous salmonids upstream of the FRH.

6.5 Feather River Fish Hatchery Annual Operation and Maintenance (Article A107.5)

Program Objective

This article will provide the operational and maintenance (O&M) support for the Feather River Fish Hatchery.

Program Description

The Licensee shall provide the necessary operational and maintenance support for all required components of the Feather River Fish Hatchery Program, including the infrastructure (power, water, plumbing, wiring), equipment (pumps, storage buildings, water strainers), materials, etc., as well as the appropriate staff to operate, maintain, and repair these facilities.

In coordination with DFG, the Licensee shall conduct a comprehensive facility assessment of the FRH, at least once every 5 years. This will be used to identify whether changes need to be made to the facilities to support the O&M at the hatchery. All findings shall be submitted to FERC in the Lower Feather River Habitat Improvement Plan report. The specific nature of the budgetary relationship (contract procedures, payment processing, budgetary timelines, etc.) shall be developed between the Licensee and California Department of Fish and Game.

Timeframe

Within two years of license issuance, the Licensee, in coordination with California Department of Fish and Game, shall conduct the first comprehensive facility assessment. The Licensee shall submit for the Commission's information a report which includes the results of the initial assessment, and summary reports at least every five years as part of the Lower Feather River Habitat Improvement Plan report.

7. Flow and Temperature Proposal to Support Anadromous Fish (Article A108)

7.1 River Outlet Valve. Upon execution and filing of the Settlement Agreement, DWR will begin the necessary studies for the refurbishment or replacement of the river valve. DWR will refurbish or replace the river valve as necessary. The reconnaissance and feasibility studies discussed below may analyze the replacement of the river valve to achieve water temperature purposes. The river valve will continue to be used primarily for meeting the existing hatchery temperature requirements until a physical modification for providing colder water to the Low Flow Channel and High Flow Channel is constructed.

7.2 Low Flow Channel Measures (Article A108.1). Upon acceptance of the new license, DWR will implement flow and operational measures to achieve temperature objectives in Table 1 in the Low Flow Channel, including Table 1 ("Table 1"Attachment1).

A. Upon license issuance, the Licensee shall release a minimum flow of 700 cfs into the Low Flow Channel. The minimum flow shall be 800 cfs from September 9 to March 31 of each year to accommodate spawning of anadromous fish, unless the National Marine Fisheries Service, U.S. Fish and Wildlife Service, California Department of Fish and Game provide a written notice that a flow (between 700 cfs and 800 cfs) will substantially meet the needs of anadromous fish, in which event Licensee may release that lower flow. The Resource Agencies will provide the supporting information for the 800 cfs flow with their preliminary terms and conditions and the Biological Opinions. If the Licensee receives such a notice, it may operate consistent with the revised minimum flow. The Licensee shall file such notice with the Commission within thirty days for information.

B. Prior to the Facilities Modification(s) described in Proposed License Article A108.4, if DWR does not achieve, or expects not to achieve, the applicable Table 1 temperature upon release of the minimum flow specified in Paragraph 7.2(A), DWR will implement these measures as necessary to achieve Table 1 or minimize exceedance. DWR will promptly, singularly or in combination: (i) curtail pump-back operation, (ii) remove shutters on Hyatt Intake to draw the flow release from lower reservoir elevation, and (iii) increase flow releases in the Low Flow Channel up to a maximum of 1500 cfs; provided however these flows need not exceed the actual flows in the High Flow Channel, but in no event would High Flow Channel flows be less than those specified in Proposed License Article A108.2 to meet Table 1 or minimize exceedences. The river valve will be used primarily to meet hatchery temperature requirements, which has the incidental effect of helping to achieve Table 1. Prior to the Facilities Modification(s) described in Article A108.4, Table 1 temperatures are targets and if they are not met there is no license violation so long as Licensee is otherwise in compliance with

this article. If in any given year the Licensee anticipates that these measures will not achieve the temperatures in Table 1, the Licensee shall consult with the National Marine Fisheries Service, U.S. Fish and Wildlife Service, California Department of Fish and Game, and California State Water Resources Control Board to discuss potential approaches to best managing the remaining coldwater pool in Lake Oroville, which may result in changes in the way Licensee performs the actions in (i), (ii), and (iii). Licensee shall provide prompt notice to the Commission of any actions taken under this subdivision.

C. Table 1 will be a regulatory obligation as specified below.

i. Until the completion of construction of a Facilities Modification(s) as described below, DWR will comply with Table 1 by implementing the flow and operational measures stated in Paragraph 7.2(A)-(B), as applicable. During this period, DWR will not be in violation of the license condition if such implementation does not achieve the applicable temperature in Table 1.

ii. If DWR anticipates that the measures in Paragraph 7.2(B) will not achieve in any given year the temperature objectives in Table 1, DWR shall consult with the resource agencies to discuss potential approaches to best managing the remaining coldwater pool in Lake Oroville.

iii. Upon the completion of construction of a Facilities Modification(s) as described below or the determination by FERC that Table 1 can be met without a physical modification, DWR will have an obligation to achieve Table 1. Subject to the exceptions of Paragraph 7.2(C)(iv) and Force Majeure, Table 1 exceedance will be a violation of the license condition.

iv. Notwithstanding Paragraphs 7.2(A), 7.2(B) and 7.2(C)(i)-(ii), if a Conference Year occurs at any time during the New License, DWR shall comply with Table 1 by implementing Paragraph 7.4. It will not be in violation of the license condition if such implementation does not achieve the applicable temperature in Table 1.

D. After completion of the Facilities Modification(s), DWR will no longer have to comply with B(i)(ii) and (iii) so long as Table 1 temperatures are being met.

7.3. <u>High Flow Channel Measures (Article A108.2).</u>

A. Upon license issuance, the Licensee shall, based upon the April through July unimpaired runoff of the Feather River near Oroville of the preceding water year (October 1 through September 30), maintain a minimum flow in the High

Flow Channel ("HFC") in accordance with the following schedule, provided that such releases will not cause Oroville Reservoir to be drawn down below elevation 733 feet (approximately 1,500,000 acre-feet).

Preceding April through July unimpaired runoff, Percent of normal	Minimum Flow in HFC October - February	March	April - September
55% or greater	1,700 cfs	1,700 cfs	1,000 cfs
Less than 55%	1,200 cfs	1,000 cfs	1,000 cfs

The preceding water year's unimpaired runoff shall be reported in Licensee's Bulletin 120, "Water Conditions in California-Fall Report." The term "normal" is defined as the April through July 1911-1960 mean unimpaired runoff near Oroville of 1,942,000 acre-feet.

If the April 1 runoff forecast in a given water year indicates that, under normal operation of Project 2100, Oroville Reservoir will be drawn to elevation 733 feet (approximately 1,500,000 acre-feet), minimum flows in the HFC may be diminished on a monthly average basis, in the same proportion as the respective monthly deficiencies imposed upon deliveries for agricultural use from the Project; however, in no case shall the minimum flow releases be reduced by more than 25 percent. If, between October 15 and November 30, the highest total 1-hour flow exceeds 2500 cfs, Licensee shall maintain a minimum flow within 500 cfs of that peak flow, unless such flows are caused by flood flows, an inadvertent equipment failure or malfunction.

Upon completion of the Facilities Modification(s), the Licensee shall attempt to meet the temperature targets in Table 2A during the Testing Period. Upon Completion of the Testing period and after the Commission's approval of the Testing Period Report, Table 2A, together with any amendments to it, shall be designated as Table 2B, and the Licensee shall thereafter achieve the temperatures in Table 2B, unless it is a Conference Year as described in Article A108.6

B. As provided in Paragraph 7.6, DWR will develop and, upon approval by the Commission, implement a modification to the Oroville Facilities or operations (hereafter, "Facilities Modification") to protect and enhance spawning, egg incubation, rearing and holding habitat temperature needs for Anadromous Fish in the Low Flow Channel and the High Flow Channel, as described in C below.

C. The regulatory obligation to achieve temperatures in the High Flow Channel is as specified below.

i. Table 2, as attached in Attachment 1, states temperature targets which DWR will evaluate in the Reconnaissance Study specified in Paragraph 7.6(C) and the Feasibility Studies specified in Paragraph 7.6(D). DWR will not have an obligation to achieve Table 2.

ii. Table 2A, as specified in Paragraph 7.6(D)(iii), will state temperature targets which DWR will evaluate during the Testing Period specified in Paragraph 7.6(E). DWR will not have an obligation to achieve Table 2A. During the testing period, it will not be in violation of the license condition if the Facilities Modification does not achieve Table 2A.

iii. Table 2B, as specified in Paragraph 7.6(E)(iv), states temperatures which DWR will achieve following the Testing Period. Subject to the exceptions of Paragraph 7.3(c)(iv) and Force Majeure, Table 2B exceedance will be a violation of the license condition.

iv. If a Conference Year occurs at any time during the New License, DWR will comply with its obligation for protection and enhancement of the High Flow Channel by implementing Paragraph 7.4. During any such year, it will not be in violation of the license condition if such implementation does not achieve the applicable temperature stated in Table 2, 2A, or 2B.

7.4. Conference Year (Article A108.6).

By May 1 of a Conference Year (defined in Attachment 2), and in consultation with the Resource Agencies and EC, DWR will prepare a strategic plan that states the specific actions that it will take to manage the coldwater pool to minimize exceedances of Table 1 and the applicable version of Table 2, consistent with its water supply and other legal obligations. After consultation, the Licensee shall submit the strategic plan to the Commission for information and shall implement the strategic plan. DWR will notify the Ecological Committee and the Resource Agencies within ten days of the initial determination of a Conference Year and of any update to that year-type classification.

7.5. ESA Obligations.
DWR acknowledges that, independent of this Settlement Agreement, it is subject to the applicable conditions related to the Oroville Facilities in NMFS' Biological Opinion on the Long-Term Central Valley Project and State Water Project Operations Criteria and Plan.

7.6. Facilities Modification (Articles A108.3, A108.4, A108.5).

Attached is a Flow and Temperature Timeline and Schedule, included for illustrative purposes, actual dates may vary from those shown.

A. Purposes. DWR will develop and, upon FERC's approval, implement one or more Facilities Modification to provide suitable water temperatures for the spawning, egg incubation, rearing, and holding habitat of Anadromous Fish in the Low Flow Channel per Paragraph 7.2(C) and High Flow Channel per Paragraph 7.3(C), in the least costly manner (taking into account capital, operational, and maintenance costs, including foregone power generation, third-party impacts, and beneficial uses) over the term of the New License.

B. Cost Cap. DWR commits to a cost for the Reconnaissance Study and subsequent Feasibility Study and Implementation Plan, not to exceed $5 million; and it commits to a capital cost for the Facilities Modification not to exceed $60 million (2006). Regardless of the cost cap, the licensee will implement Facilities Modification to meet Table 1 temperatures. Capital cost shall be estimated using standard procedures. Parties will not request that FERC order costs in excess of this cap, provided the Reconnaissance Study and Feasibility Study show that the Facilities Modification will achieve Table 1 temperatures and the stated purpose for the benefit of the High Flow Channel. If the total estimated costs exceed a total of $65 million, the Parties agree to seek additional third party funding.

C. Reconnaissance Study. By October 31, 2006, DWR will submit to Resource Agencies and American Rivers a Reconnaissance Study of Facilities Modification to address temperature habitat needs for anadromous fisheries in the Low Flow Channel and High Flow Channel. This study will be done in consultation with the Resources Agencies. The study will clearly: identify resource issues and goals to be addressed; identify and describe an array of alternatives to address the issues and goals; and identify potential issues, benefits, impacts and likely costs of the identified alternatives. The alternatives to be considered include, but are not limited to: (1) Palermo Canal improvements; (2) Hyatt intake extension; (3) replacement of the river valves with operational valves; (4) construction of a diversion canal around or through the Thermalito Afterbay; and (5) construction of an alternative Thermalito Afterbay Outlet and channel in the OWA to the Feather River. Alternatives will be analyzed with consideration of all project purposes, including water supply, flood control, power generation, recreation and fish and wildlife protection. If appropriate, alternatives may be eliminated from further study if: (1) the benefits do not exceed the costs, (2) there are significant environmental impacts, or (3) they are otherwise impractical. This study is not expected to determine a preferred alternative, but rather is intended to narrow the range of potential actions. DWR and the Resources Agencies (Department of the Interior, National Marine Fisheries Service, Department of Fish and Game and the State Water Resources Control Board, and U.S. Forest Service, as it may relate to their authority and jurisdiction) will rely on future in-depth studies

(described below) to eventually select a physical modification or other actions to meet Table 1 temperatures and address appropriate temperature resource goals in the High Flow Channel.

DWR will provide a draft Reconnaissance Study to the Resource Agencies and American Rivers no later than August 31. It will attempt to resolve any disputes regarding the study through consultation. The final study will include the results of such consultation, including response to comments and an explanation why any comments were not incorporated. DWR will provide a copy of the final Reconnaissance Study to FERC for information only.

D. Feasibility Study and Implementation Plan. Within three years of acceptance of New License, DWR will prepare and submit to the Commission for approval, a Feasibility Study and Implementation Plan ("Feasibility Study") for Facilities Modification to Low Flow Channel and High Flow Channel temperatures for anadromous fisheries. The Feasibility Study will:

i. Refine the analysis undertaken in the Reconnaissance Study (Paragraph 7.5(C) as to the alternative measure(s) for a Facilities Modification. Physical and operational affects of considered alternatives will be analyzed. Benefits to temperature and anadromous fishery habitat in the Low Flow Channel and High Flow Channel will be identified and quantified;

ii. Recommend specific measure(s) for implementation, to the extent that the Reconnaissance Study deferred such selection;

iii. Include Table 2A, which states the temperatures that the selected measure(s) will attempt to achieve in the High Flow Channel. The temperatures in Table 2A will be based on preliminary modeling which is intended to determine where these lower temperatures can be feasibly achieved in the High Flow Channel;

iv. State specifications, including schedule, for construction or other implementation of the selected measure(s); and

v. Provide for adaptive management of the Facilities Modification following approval of the Feasibility Study.

DWR will provide a draft Feasibility Study to the Resource Agencies and other members of the EC at least 3 months before the deadline for submittal to FERC. It will attempt to resolve any disputes regarding the plan through such consultation. The final plan will include the results of such consultation, including response to comments and explanation why any comments were not incorporated. DWR will prepare a preliminary draft environmental assessment for the preferred alternative.

The preferred alternative is subject to the approval of the Executive Officer of the SWRCB.

DWR will also include in the fisheries monitoring program a multi-year study of the utilization of the High Flow Channel by anadramous fish prior to installation of any Facilities Modification in order to accumulate baseline data.

E. Testing Period. DWR will complete the Facilities Modification pursuant to the approved Feasibility Study after receipt of all necessary regulatory approvals. During a Testing Period of five years following such completion, DWR will test the adequacy of the Facilities Modification to achieve 2A, as well as the benefits to fish described in Paragraph 7.6(A) above. In the event the five year period does not include a representative sample of year-types, DWR shall confer with the Ecological Committee regarding the reliability of the test results and recommend to FERC a continuation of the testing period for such additional time as may be reasonable. It shall file with FERC a Testing Period Report which:

i. Describes and analyzes monitoring data for temperature, habitat use by Anadromous Fish, and operations;

ii. Monitors whether the Facilities Modification has achieved Tables 1 and 2A during the Testing Period, and whether the testing results confirm that the Facilities Modification will achieve Tables 1 and 2A over the remainder of the New License;

iii. Analyzes whether the temperatures resulting from the Facilities Modification have increased availability or suitability of HFC habitat for Anadromous Fish as predicted; and

iv. If appropriate, recommends alterations to the Facilities Modification or Table 2A. Any recommendations for the temperatures to be achieved after the Testing Period, including any modifications to Table 2A, will be stated in Table 2B.

DWR will provide a draft Testing Period Report to the Resource Agencies and other members of the Ecological Committee at least 3 months before the deadline for submittal to FERC. It will attempt to resolve any disputes regarding the report through such consultation. The final report will include the results of such consultation, including response to comments and explanation why any comments were not incorporated.

F. Operations Following Testing Period. DWR will operate and maintain the Facilities Modification, as may be required or as modified by FERC's approval of the Testing Period Report.

7.7. License Term. Resources Agencies agree to a fifty-year license.

Table 1
Low Flow Channel
as measured at Robinson Riffle
(all temperatures are in daily mean value (degrees F))

MONTH	*Temperature*
January	56
February	56
March	56
April	56
May 1-15	56-63*
May 16-31	63
June 1 - 15	63
June 16 - 30	63
July	63
August	63
September 1-8	63-58*
September 9 – 30	58
October	56
November	56
December	56

* Indicates a period of transition from the first temperature to the second temperature.

Table 2
High Flow Channel as measured at
Downstream Project Boundary
(all temperatures are in daily mean value (degrees F))

MONTH	*Temperature*
January	56
February	56
March	56
April	61
May	64
June	64
July	64
August	64
September	61
October	60
November	56
December	56

Section 7, Attachment 2

Definition of a Conference Year

A Conference Year is defined as any year that the Licensee anticipates there will not be a sufficient cold water pool in Lake Oroville to meet the temperature objectives of Table 1, Table 2A or Table 2B, based on one or more of the following criteria:

(1) The Oroville Temperature Management Index (OTMI) is equal or less than 1.35 million acre-feet. OTMI is calculated by multiplying the total volume of stored water in Lake Oroville on May 1 by one half and adding to that the projected May-through-September unimpaired Feather River flow at Oroville. The unimpaired Feather River flow at Oroville means the runoff that would be in the Feather River at Oroville if there were no human development on the Feather River. The amount of Feather River unimpaired flows used for calculating the OTMI will be the median value (with an exceedance probability of 50 percent) of May 1 forecast published in DWR Bulletin 120. As the actual amount of unimpaired flow after May 1 becomes available, the OTMI will be recomputed in the beginning of June, July, and August to account for the potential errors of the May 1 prediction. The OTMI will not be updated after the August 1 update;

Licensee will inform the Ecological Committee within ten days of the initial determination of a Conference Year and subsequent updates of that year-type classification.

In addition, If the Licensee is unable to meet the temperature requirements in Articles A107.2, A108.1, A108.2 or A108.5 due to an event or circumstances beyond its reasonable control, the Licensee shall file a notice within ten days of such event or circumstance with the Commission describing the event or circumstances causing the inability to meet those temperature requirements. It shall provide a copy to the Ecological Committee, including specifically U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish and Game and the State Water Resources Control Board (consultees) for comment and opportunity for dispute resolution pursuant to A133. Such notice shall include a statement of specific actions that the Licensee will take to address the event or circumstance and how it will manage the coldwater pool to minimize exceedances of Table 1 and the applicable version of Table 2, consistent with its water supply and other legal obligations. If the Commission finds that there is a pattern of exceedances that could result in adverse impacts to fishery resources, it may require the Licensee to file a plan developed in consultation with the consultees identifying any feasible measures that the Licensee may undertake, or modifications to other license requirements, to address the exceedances.

8. Comprehensive Water Quality Monitoring Program (Article A112)

Purpose

This Article is intended to establish a program for data collection to document water quality conditions in project-affected waters, including contributions from upstream sources, limnologic changes occurring within impoundments, pathogen levels at recreation sites, effects of project re-operation on Feather River thermal regime, and long-term effects of the project on water quality from present and future operations.

Description

The licensee shall develop and implement a comprehensive water quality monitoring program for surface waters within the Project area, through which the Licensee shall track potential changes in water quality associated with the Project, and collect data necessary to develop a water quality trend assessment through the life of the FERC License. Water quality monitoring shall focus on the identification of those organic and inorganic constituent and physical parameter levels that may affect beneficial uses identified in the Basin Plan for surface waters. Laboratory analyses shall be conducted using USEPA Standard Methods, adequately sensitive to detect constituent levels for determination of compliance with recognized state and federal criteria.

General Provisions – Comprehensive Water Quality Monitoring Program

The following stipulations shall apply to the program:

1. Within six months of license acceptance, the Licensee shall conduct meetings and invite the Resource Agencies (U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish and Game, California State Water Resources Control Board (SWRCB), and Central Valley Regional Water Quality Control Board (CVRWQCB)), Ecological Committee, and Butte County Health Department to participate in the development of a draft initial Comprehensive Water Quality Monitoring Program that will include plans to sample water chemistry, fish tissue bioaccumulation, recreation site pathogens and petroleum product concentrations, water temperature, bioassays, and aquatic macro invertebrate monitoring. These plans shall:
    a. provide detail on field sampling locations, sampling frequency, handling methods and QA/QC; and
    b. shall define the laboratory analyses and associated method detection limits for all constituents and parameters to be monitored in the various elements within the plans of the comprehensive water quality monitoring program.

2. Following consultation, and within nine months of license acceptance, the draft program shall be submitted to the Chief of the Division of Water Rights, SWRCB for review and approval. After SWRCB approval, the program will be filed with FERC for approval shall be implemented as described, for the first 5 years of the License.

3. Water quality data collected in each of the first 5 years shall be analyzed and compiled into annual reports, to be provided to the Resource Agencies, the Ecological Committee, the Butte County Public Health Department, and any other entity upon request, prior to May 30th of the following year. Through annual meetings with the Resource Agencies, the Ecological Committee, and Butte County Public Health Department during years 2-5, the Licensee may propose appropriate amendments to the initial Comprehensive Water Quality Monitoring Program. Any proposed changes to the program would be submitted to the Chief of the Division of Water Rights, SWRCB for approval.

4. Following completion of all data collection for year 5, the Licensee shall compile a summary report of the comprehensive water quality monitoring program to be provided to FERC, the Resource Agencies, the Ecological Committee, the Butte County Public Health Department, and any other entity upon request. A 45-day notice shall accompany the report, inviting all recipients to attend a water quality meeting, scheduled by the Licensee, to discuss findings of the 5-year data set. After consulting with meeting participants, the Licensee may recommend modifications to the Comprehensive Water Quality Monitoring Program, these shall be submitted to the Chief of the Division of Water Rights, SWRCB for approval. After SWRCB approval, a final Comprehensive Water Quality Monitoring Program will be filed with FERC for approval and copies transmitted to all entities previously active in the water quality review process.

5. The Licensee shall implement the final Comprehensive Water Quality Monitoring Program as described, for the remaining life of the license. Water quality data shall be analyzed and compiled into 5-year Reports through the term of the license. The 5-year Report shall be distributed to the Resource Agencies, the Ecological Committee, Butte County Public Health Department, and any other entity upon request. This report will be distributed prior to May 30 of the following year.

Water Chemistry Monitoring Plan

Within six months following CWQMP and Commission approval, the Licensee shall begin implementation of a Water Chemistry Monitoring Plan to provide information that demonstrates compliance with the Basin Plan standards and other applicable state and federal water quality criteria. The long-term monitoring program shall provide data to identify trends associated with water column constituent values and physical parameters that may be affected by impoundment of waters, recreational activities, or

project operations of the Oroville Facilities. The following stipulations shall apply to the plan:

1. In-situ Physical Parameters: The Licensee shall monitor between 15 and 20 locations four times each year for physical parameters necessary for determining water quality. The existing marinas (Bidwell and Lime Saddle) are included as one of the locations, with Bidwell Marina sampled in even numbered years while Lime Saddle Marina shall be sampled in odd numbered years. Monitoring at Lake Oroville, the Diversion Pool at Oroville Dam, and one site within the Thermalito Afterbay shall include vertical profiles for temperature, DO, pH, and specific conductivity collected at one meter intervals from surface to substrate. However, additional in-situ monitoring shall be conducted at both marinas one time each month during the recreation season (June-September) and one time after the first three significant storm events. Physical parameters are: water temperature, dissolved oxygen, pH, specific conductivity, and turbidity (each sample water temperature datum generated in this program element shall remain independent from those temperature monitoring requirements identified in the Water Temperature Monitoring Plan below).

2. Nutrients: The Licensee shall monitor between 15 and 20 locations twice each year for nutrients necessary for determining water quality. The Bidwell and Lime Saddle Marinas shall be included within the locations, with Bidwell Marina sampled in even numbered years while Lime Saddle Marina shall be sampled in odd numbered years. However, additional nutrient monitoring shall occur at both marinas one time each month during the recreation season (June-September) and one time after the first three significant storm events. Nutrients are: nitrate plus nitrite, ammonia, organic nitrogen, dissolved orthophosphate, and total phosphorus.

3. Metals: The Licensee shall monitor between 18 and 22 locations four times each year for metals necessary for determining water quality. Samples shall be collected to represent spring, summer, fall and winter conditions. The developed marinas (Bidwell and Lime Saddle) shall be included in the locations, along with sites to be specified in Lake Oroville, the Diversion Pool, Thermalito Forebay, Thermalito Afterbay, the Low Flow Channel, Mile Long Pond, and at the southern boundary of the Project. Additional monitoring shall occur at both marinas one time each month during the recreation season (June-September) and one time after the first three significant storm events. Metals shall be analyzed and reported as total concentrations and dissolved fractions for: aluminum, arsenic, cadmium, chromium, copper, iron, lead, manganese, nickel, selenium, silver, zinc, and mercury; in addition, total hardness shall be analyzed for each sampling location.

4. Minerals and Alkalinity: The Licensee shall monitor between 15 and 20 locations two times each year (spring and fall) for minerals and alkalinity necessary for determining water quality. The marinas (Bidwell and Lime

Saddle) are included as one of the locations, where Bidwell Marina shall be sampled in even numbered years while Lime Saddle Marina shall be sampled in odd numbered years. Additional monitoring for minerals and alkalinity shall occur at both marinas one time each month during the recreation season (June-September) and one time after the first three significant storm events. Minerals are: calcium, sodium, potassium, magnesium, sulfate, chloride, boron, and alkalinity.

5. Plankton: The Licensee shall monitor 2 locations, two times each year, for phytoplankton and zooplankton as part of the water quality assessment. The monitoring sites are Oroville Dam and Thermalito Afterbay.

Fish Tissue Bioaccumulation Monitoring

Within three years following CWQMP and Commission approval, a Fish Tissue Bioaccumulation Monitoring (FTBM) Plan shall be implemented. The FTBM Plan shall be designed and implemented to provide information on bioaccumulation rates within the aquatic food chain. This FTBM Plan will be reviewed after two sampling cycles to determine if modifications to methods or indicator species identified in the bioaccumulation element of the Comprehensive Water Quality Monitoring Program should occur.

1. The Licensee shall collect resident fish species from 7 locations within project waters, one time every five years and analyze tissue for metals and organic compounds. Sampling strategy for target species, numbers of individuals, sampling locations, and analytical methods used shall be consistent with SWRCB Surface Water Ambient Monitoring Program needs, and shall be determined through Licensee consultation with Resource Agencies, the EC, and the Office of Environmental Health Hazard Assessment prior to each sampling event. Metals are: arsenic, cadmium, chromium, copper, iron, lead, nickel, selenium, silver, zinc, and mercury. Organic compounds are: chlordane, chlorpyrifos, DDT isomers, dieldrin, hexachlorobenzene, and polychlorinated biphenyls.

2. Data collected through the FTBM Plan shall be provided to appropriate regulatory agencies for use in implementing Proposed License Article A114, for public education regarding human health risks of fish consumption.

Recreation Site Water Quality Monitoring Plan

Within six months following CWQMP and Commission approval, a Recreation Site Water Quality Monitoring (RSWQM) Plan shall be implemented to provide information related to water quality at recreation sites and to determine summer bacterial concentrations at swim beaches. This RSWQM Plan shall be implemented annually through the term of the license and shall be integrated with measures

provided in Proposed License Article A113, for bacterial monitoring and public education.

1. Pathogens: The Licensee shall conduct bacteriological monitoring (consistent with the Basin Plan objectives for protection of the REC-1 beneficial uses) at 12 to 16 locations within project waters each summer season. Near-shore water samples shall be collected five times within a 30-day period at each location from June 15 through September 15. Potential sampling locations shall include developed beach areas, marinas, and boat launch areas along with high-use dispersed beach and shoreline locations in all waters affected by project operations. Prior to April 30th each year, the Licensee, in consultation with the Resource Agencies, the Butte County Public Health Department and the EC, shall select the locations to be included in the upcoming seasonal sampling program. The list of bacteriological sampling locations shall always include North Forebay Cove and South Forebay Swim Area, in addition to sampling at 10-14 annually rotating stations. Additionally, at the North Forebay Beach area, individual screening samples shall be collected seasonally, four times throughout the year. Laboratory analyses for pathogens shall include: total coliform, fecal coliform, e-coli, and enterococcus, or other representative bacterial species consistent with any future amendment to the Basin Plan objectives.

2. Petroleum Products: The Licensee shall monitor 6 locations for petroleum products in project waters (Bidwell Marina, Lime Saddle Marina, Foreman Creek Boat-in Campground, Spillway BR/DUA, Oroville Dam, and Monument Hill). Petroleum products shall be sampled one time each month from June through September and once after the first three significant storm events. Field sampling methods shall include both surface and bottom samples at each location. Petroleum products to be analyzed are: Total Petroleum Hydrocarbons, MTBE and benzene.

3. Soil Erosion: The Licensee shall inspect trails between May 1 and May 15 and following summer recreation season to identify soil erosion and potential subsidence into reservoirs or flowing waterways.

Water Temperature Monitoring Plan

Within three months following CWQMP and Commission approval, the Licensee shall begin implementation of the Water Temperature Monitoring (WTM) Plan to provide information that demonstrates compliance with the Feather River Fish Hatchery requirements (Proposed License Article A107.2), the OCAP Biological Opinion, and Basin Plan water quality standards. In addition, the WTM Plan shall be designed to provide data necessary for additional modeling or study associated with reconnaissance and feasibility studies of the flow and temperature program (detailed in Article A108). This WTM Plan shall be reviewed after five years to determine if modifications to the Comprehensive Water Quality Monitoring Program are

necessary for consistency with measures that may be implemented following year 6 decisions on water temperature management in the Low Flow Channel and High Flow Channel.

1. Temperature: The WTM plan shall be designed to site 4 permanent continuous temperature monitoring gages at the following locations:
    a. the Feather River Hatchery aeration tower,
    b. Robinson's Riffle,
    c. Thermalito Afterbay Outlet, and
    d. the Feather River adjacent to the most southern FERC Project 2100 boundary.

    The permanent temperature gages shall be capable of providing real-time data to the hatchery operators and to the public via an internet-based medium such as the Department of Water Resources' California Data Exchange Center. The four permanent gages shall remain operational throughout the life of the license.

    The WTM plan shall provide for the installation of temporary continuous temperature recording devices at appropriate temperature nodes, adequate to provide data necessary for predictive modeling in the Phase I Temperature Improvement Program. The locations of the temperature stations will be determined by the needs and results of the flow and temperature reconnaissance study (Article A108). The stations may include: Hyatt Intake in Lake Oroville, the Diversion Pool at Oroville Dam, the Diversion Pool at Kelly Ridge powerhouse tailrace, the Feather River Hatchery intake within the Diversion Pool, Thermalito Power Canal, the Thermalito North Forebay, Thermalito Pumping-Generating Plant, Western Canal diversion intake, Sutter Buttes Canal intake, upstream of the Fish Barrier Dam, the Feather River upstream of the Thermalito Afterbay Outlet, and the Feather River at the Gridley Bridge. Single sampling locations in Lake Oroville near the dam, the Diversion Pool at Oroville Dam, and within the Thermalito Afterbay should include temperature profile monitoring, as described in the water chemistry section.

Water Quality Bioassay Monitoring Plan

Within three years following CWQMP and Commission approval, a Water Quality Bioassay Monitoring (WQBM) Plan shall be implemented to provide information to determine compliance with applicable the Basin Plan objectives. This WQBM Plan will be reviewed after two sampling cycles to determine if modification to the Comprehensive Water Quality Monitoring Program should occur.

1. Bioassays: The Licensee shall collect water column samples from 2 locations in the LFC, seasonally 4 times in a single year (seasonally), on a 5 year cycle to conduct bioassay tests on aquatic organisms. Field sampling and laboratory analysis shall be consistent with methods recognized by the SWRCB Surface Water Ambient Monitoring Program (or successor program). Aquatic organisms

to be used in bioassays are: *Ceriodaphnia* and Fathead minnow (*Pimephales promelas*).

Aquatic Macroinvertebrates Monitoring Plan

Within one year following CWQMP and Commission approval, the Licensee shall implement an Aquatic Macroinvertebrate Monitoring Plan (AMM). Macroinvertebrates shall be used as an indicator of biological and physical stream integrity. The AMM Plan could provide information related to long-term water quality conditions. This AMM Plan shall be reviewed after two sampling cycles to determine if modification to the Comprehensive Water Quality Monitoring Program should occur.

1. Macroinvertebrates: Macroinvertebrate sampling shall be conducted at a minimum of 7 stream locations during the fall index period one time every three years. Field sampling, laboratory identification, and statistical analysis shall be consistent with the California Stream Bioassessment Procedures (DFG) or subsequent methodologies acceptable to the SWRCB Surface Water Ambient Monitoring Program and DFG. A minimum of four sites shall be located in the Low Flow Channel and one site in the High Flow Channel at the southern-most project boundary. Following construction of any side channel habitat created as part of the Lower Feather River Habitat Improvement Program, sampling sites representative of each channel shall be added to the monitoring program.

The Licensee, in consultation with U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish and Game, California State Water Resources Control Board (SWRCB), and Central Valley Regional Water Quality Control Board (CVRWQCB)), Ecological Committee, and Butte County Health Department, shall reevaluate the Program every five years after initial implementation. Any recommendations acceptable to the Licensee for changes to the Program shall be submitted to the Chief Division of Water Rights, California State Water Resources Control Board, for review and approval. The Licensee shall provide all Program updates to the Commission for information. If any changes are recommended beyond the objectives, activities, or schedules identified in the Program, the Licensee shall submit final recommendations to the Commission for approval. The Licensee shall include with the filing copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why any comment was not adopted. Upon Commission approval, the Licensee shall implement the Plan, including any changes required by the Commission. The Licensee shall include any Commission approved revisions to the Plan in any updates to the Lower Feather River Habitat Improvement Plan.

9. Oroville Wildlife Area Management Plan (Article A115)

1. Objectives

This measure is intended to identify and resolve potential resource conflicts in the Oroville Wildlife Area (OWA) and to provide a framework for management of the OWA.

2. Program Description

DWR, California Department of Fish and Game (Wildlife Management Branch), and California Department of Parks and Recreation shall cooperatively develop a Management Plan (Plan) for the Oroville Wildlife Area, including the Thermalito Afterbay, in consultation with the Ecological Committee, including specifically U.S. Fish and Wildlife Service, National Marine Fisheries Service, California State Water Resources Control Board, and Central Valley Regional Water Quality Control Board (consultees). The Plan shall include all lands currently administered by California Department of Fish and Game as part of the Oroville Wildlife Area including those parcels currently outside of the FERC project boundary. Specifically, the Plan shall contain:

- Conservation measures identified in the Final Federal Biological Opinions
- Resource Actions included in the new license and that could affect the OWA
- Strategies to minimize current and future wildlife/recreation conflicts
- Wildlife management goals and objectives
- Recreation management goals and objectives
- Agency management and funding responsibilities
- Best management practices, including fuel load management for the reduction of fire risk to nearby properties and human life
- DWR, California Department of Fish and Game and California Department of Parks and Recreation roles to carry out the Plan.
- Plan will include certain common elements of the Lower Feather River Habitat Improvement Plan
- Original issues, resource goals, and resource actions developed by the collaborative shall be considered in this management plan.
- The OWA Management Plan will go through the public review process according to CEQA.
- This plan will be coordinated with the Recreation Management Plan.
- DFG will commit to make a recommendation at the next DFG Commission cycle (2006-2007) to adjust the speed limit regulation for south of Hwy 162 in the Afterbay. It is understood that future ESA issues may require re-evaluation of this policy
- Actions designed to improve conditions for special status species and their habitats.

The Plan shall be developed and filed with FERC upon completion of appropriate State of California environmental compliance processes. Plan development shall be consistent with any appropriate methodologies as outlined in California Department of Fish and Game's *A Guide and Annotated Outline for Writing Land Management Plans*

(2002) and FERC's *Guidance for Shoreline Management Planning at Hydropower Projects*, including public involvement through the CEQA process. DWR shall provide opportunity for review and comment of the DRAFT plan by the Ecological Committee and Department of Fish and Game Wildlife Management Branch.

3. Measures of Success/Monitoring

The Plan shall include monitoring requirements to determine if the agreed-to management practices provide adequate protection for federal and state endangered species and their habitat, birds subject to the Migratory Bird Treaty, and other ecological resources.

The Licensee, in consultation with the consultees listed above, shall reevaluate the Plan every five years after initial implementation. Consistent with the Recreation Management Plan, the Recreation Advisory Committee shall have an opportunity to provide input. The Licensee shall provide all Plan updates to the Commission for information. If any changes are recommended beyond the objectives, activities, or schedules identified in Proposed License Article A115 or the Plan, the Licensee shall submit final recommendations to the Commission for approval. The Licensee shall include with the filing copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why any comment was not adopted. Upon Commission approval, the Licensee shall implement the Plan, including any changes required by the Commission. The Licensee shall include any Commission approved revisions to the Plan in any updates to the Lower Feather River Habitat Improvement Plan.

4. Cost

The Licensee commits to provide no more than $200,000 to California Department of Fish and Game's OWA plan development process efforts.

California Department of Fish and Game commits to best efforts to obtain funding for development of the management plan.